

Ferranti bids for Far East market

by Robert Parry
FERRANTI is to take on the micro makers of the Far East on their home ground.

The UK pioneer in semi-custom chips this week launched a joint venture with Hong Kong's Wheelock Microelectronics group subsidiary, Semiconductor Devices. It is the first time that a foreign company has been set up in the Colony to design, assemble and test this type of microprocessor.

The joint venture, to be called Ferranti Wheelock Microelectronics, is aiming at a market for gate arrays in the Far East which is currently about \$50 million a year. Ferranti expects this to jump to half a billion dollars by 1986 and aims to take one-third of it by then.

Ferranti's brand of gate arrays, uncommitted logic arrays, or ULAs, cover a range of complexity and size. To take advantage of the circuits, computer-aided design techniques are needed to lay out the final arrangement of logic cells and interconnections. Ferranti's CAD system, ULA Designer, forms the heart of the Hong Kong set-up.

Designs will be carried out by Ferranti Wheelock engineers, after customers have defined the specification of the custom circuits. Final details are sent to Ferranti in Manchester over a modem link, where the design is checked, simulated, and automatically laid out. Prototype wafers are then produced in Manchester and shipped to Hong Kong for assembly and test.

Semiconductor Devices has assembly and test operations in Manila and in mainland China as well as the Aberdeen plant in Hong Kong. Production volumes of circuits will also be assembled and tested locally.

Control of the design and production programme remains in Hong Kong throughout. This gives lower development times and ensures design security, says Ferranti. Customers have no language or travel problems, and invoicing is in local currencies.

Ferranti already has six similar design centres in Europe and the US. It has subsidiary companies in Germany and America, including Ferranti Electric in New York and Interdesign in California.

Irish microcomputers go on show

by Kevin Cahill
THE Irish have jumped on the national microcomputer bandwagon. Two new Irish-built, Irish-designed microcomputer systems were the high point of Ireland's biennial Ibeta business equipment show last week.

The first of the new micros to be announced came from Memory Computers Ireland, which is shortly to seek a placing on the London Stock Exchange if conversions with stockbrokers Simon and Coates are successful.

The micro, called the System 7500, is a multi-tasking, multi-processor 16-bit system expandable up to eight workstations.

The machine has an entry level price of £13,000. Alongside the computer, the company has also introduced a generalised software package called System 505 which includes communications, telex and general business processing capabilities.

According to a company spokesman, a number of orders were taken at the exhibition.

The second home-built and designed machine to go on show was the Transect BC2, an eight-bit micro.

The machine comes with twin 5¼-inch floppy discs and will be available shortly in the UK costing £2,400 including a printer.

The show, run in conjunction with the Irish Computer Society, was opened by Irish Industry Minister Albert Reynolds who told attendees that over one sixth of all Irish exports were now in the form of computers and electronic kit.

The larger computer manufacturers already established in Ireland were out in force, and Nixdorf's local sales director Raymond Naughton said that Ibeta was one of the best ways his company had found of meeting otherwise inaccessible people such as senior civil servants.

Nixdorf has two major subsidiaries in Ireland, with an estimated 25% share of the local computer market, as well as being one of the country's biggest computer exporters.

Both IBM and ICL were present, although neither company manufactures in Ireland. A spokesman at the IBM stand admitted that the local manufacturers like DEC, Wang and Prime were making increasing inroads on the local marketplace from their factory bases in the Republic.



PASCOE... "We will still be in office market in 10 years."

Debut for Sperrylink

by John Riley

SPERRY Univac this week took the wraps off its strategy and products for office systems, Sperrylink. John Pascoe, Sperry's UK director, said with a great deal of confidence: "We will still be in the office systems market in 10 years."

He emphasised the speed with which the company was announcing new products and added "There will be more before the end of the year."

But Sperry will only be selling its office system product to its own 1100 Series customers to begin with. Sperry UK general manager Bill Read said "It is a top down decision. We start from the database, which comes down to the desktop, whereas rival systems

start with their products and add them on to the office."

Sperrylink is available in three models - standalone, departmental and interdepartmental. The standalone system is a 128K micro with word processing, terminal and personal computing, using the operating system CP/M, capacity.

Up to 15 desk stations can be linked through a Distributed Office Processing Station (DOPS/10) to add electronic mail, file sharing, archiving, and administrative systems.

Microvitec wins 2nd award

By Robert Parry

THIS year has become a double award celebration for British video display maker Microvitec. Following on from its regional award in the Bowmaker Industries Achievement scheme, it has now won a £25,000 fourth prize in the Hill Samuel Anniversaries Awards aimed at small private companies in the manufacturing sector.

"Winning awards like this is good for a young company like us," says managing director Anthony Martinez. "It gives credibility, and we need people to recognise us."

The Hill Samuel scheme marks the firm's 150th anniversary and gave away £150,000-£50,000 to first prize winner D. Mino Printing Science, the second prize to Microvitec, and the third to Tudorcor, NPI Electronics, Microvitec and Molyneux.

These were chosen out of 18 entrants by a judging panel, led by Sir Michael Edwards, who looked for growth potential, innovation and management. Microvitec, independently owned, is a manufacturing sector, with a turnover below £2 million.

5m more to call Prestel

by Donald Kennett

ANOTHER five million: Britain's telephones will be able to access Prestel by the middle of next year.

Prestel's network of multiple users is to be extended to 11 million (92%) of the UK's telephone subscribers within local call ranges, instead of the 11 million (62%) who are currently in range.

SDL raises City cash for US push

by George Black

SYSTEMS house Systems Designers is to make a £1½ million push into the US, fuelled by cash raised last Tuesday on the Stock Exchange.

The Hampshire-based company put up 24% of its shares on a full listing on the Stock Exchange made up of £1.1 million of shares from existing shareholders and a further £400,000 worth of new shares.

The issue is being managed by merchant bank Samuel Montagu and stockbrokers James Capel. SDL was founded in 1969 by now chairman and managing director Philip Swinstead and traditionally specialised in defence work.

SDL plans to expand its involvement with videodata both in the US and in Europe. Defence contracts have now fallen to about 40% of its business, as industrial and information work has become a more

significant part of operations. The industrial sector accounted for 20% of turnover last year, information work for 10% and software products, such as the Coral 66 compiler and the Context package, for 15%.

After trading for 13 years, the company had a profit last year of £827,000. It employs some 280 computing experts.

Once almost entirely committed to supplying the Ministry of Defence and collaborating with Plessey on projects such as the Parnigan, SDL has diversified into assisting the West German PTT with its videodata system and to acting as consultants for Tandem NonStop systems in banking and commerce.

The firm's commitment to Tandem NonStop services is the result of spreading use by the commercial world of systems which do not risk loss of data in the event of a computer failure. Such interruptions

can prove extremely damaging and more and more organisations seek to guard against them by arranging to duplicate essential processes as an automatic back-up.

System Designers is not losing interest in defence schemes: 36-year-old Derek Larman was recently appointed as defence business development manager in response to an increasing scope for backing main contractors such as Marconi and Ferranti.

Systems Designers Limited is one of four trading subsidiaries of Systems Designers International.

In April 1981 SDL set up a new speech technology centre. It has also been trying to break into the lucrative oil and gas industries computing area.

On the videodata front it has supplied a 500-port system, the largest of its type in the UK, for Thomas Cook's Holidaymaker package. This allows up to 20,000 users.



SWINSTEAD... Raised cash on the Stock Exchange.

Fifty more IT centres to help young jobless

by George Black

YOUNG unemployed not living in big cities may have a lifeline thrown to them by IT Minister Kenneth Baker, who has announced public spending of £12 million on 50 new information technology centres.

Some of the new ITECS could be placed in smaller population centres or have branches, SUBITECS, in these areas, if the government follows up ideas now being discussed at the Industry Department.

More than 1,000 trainee posts will be created by the scheme in the next year, but sites for the centres have not yet been decided.

There are already 59 centres at which young people are learning operating, programming and electronics and a further 40 are in the pipeline. Local organisations, including banks, councils and private companies, are co-sponsoring the projects with the DoI.

ITECS have so far been concentrated in the worst affected unemployment areas.

Snag in ICL move to expert systems

by Philip Hunter

ICL's move into expert systems with the Perq microcomputer has hit a snag caused by development problems at its small US partner.

The Three Rivers Computer company in Pittsburgh, which gave ICL full European marketing rights for its Perq personal system, ran into trouble developing an upgraded version.

An increased memory model to handle the language Lisp, which is widely used for artificial intelligence applications in the US, was due for release at the Comdex Show in Las Vegas in November. It will not now be available until the second quarter of 1983, according to a Three Rivers spokesman.

ICL was planning to adopt this new model for artificial intelligence applications in the UK, but will now have to defer launch until the middle of next year.

The version of Perq already sold in the UK and Europe by ICL is aimed specifically at specialist applications such as engineering. It is expensive, about £20,000, but compact, offering the performance of a Digital Equipment Vax in the size of a personal computer.

This makes it ideal for running Lisp, which has put off some potential users because of its huge demands on memory.

Several companies already have machines dedicated to Lisp, but none is yet generally available in the UK. Rank Xerox has built about 200 Lisp machines, but these have mostly been for use inside the company, and the remainder were sold in the US.

Lisp Machine of the US has so far sold 19 dedicated machines, and in co-operation with Western Digital, plans to launch a new computer running the language with the Unix operating system.

Mini sales 'will overtake mainframes by 1986'

MINIS will overtake mainframes as the big sellers of the computer world by 1986.

The mainframes' share of the computer market will drop to 35% by 1986, predicts a report by business researchers Frost and Sullivan. In 1976 mainframes accounted for 80% of the total.

The report says that large mainframes were pushing out minis just as fast as micros were encroaching on their own territory, the researchers found.

The mini market would rise to \$12½ billion a year by then, far short of some recent forecasts. The slowing-up was due to the recession, high interest rates and the advance of the micro at the bottom end.

The average price of a complete system, including peripherals, operating systems and software, would not fall below \$95,000 in that time.

Micros with 32-bit architecture would soon be competing with traditional 8-bit and 16-bit systems, says the report.

Systime to automate MPs' pay

SYSTIME this week landed the contract for looking after MPs' pay and pensions.

The Leeds-based computer maker won the £280,000 job of computerising the House of Commons fees office, which handles all aspects of finance and accounting for the Commons, including the pay and pensions of MPs and their staffs.

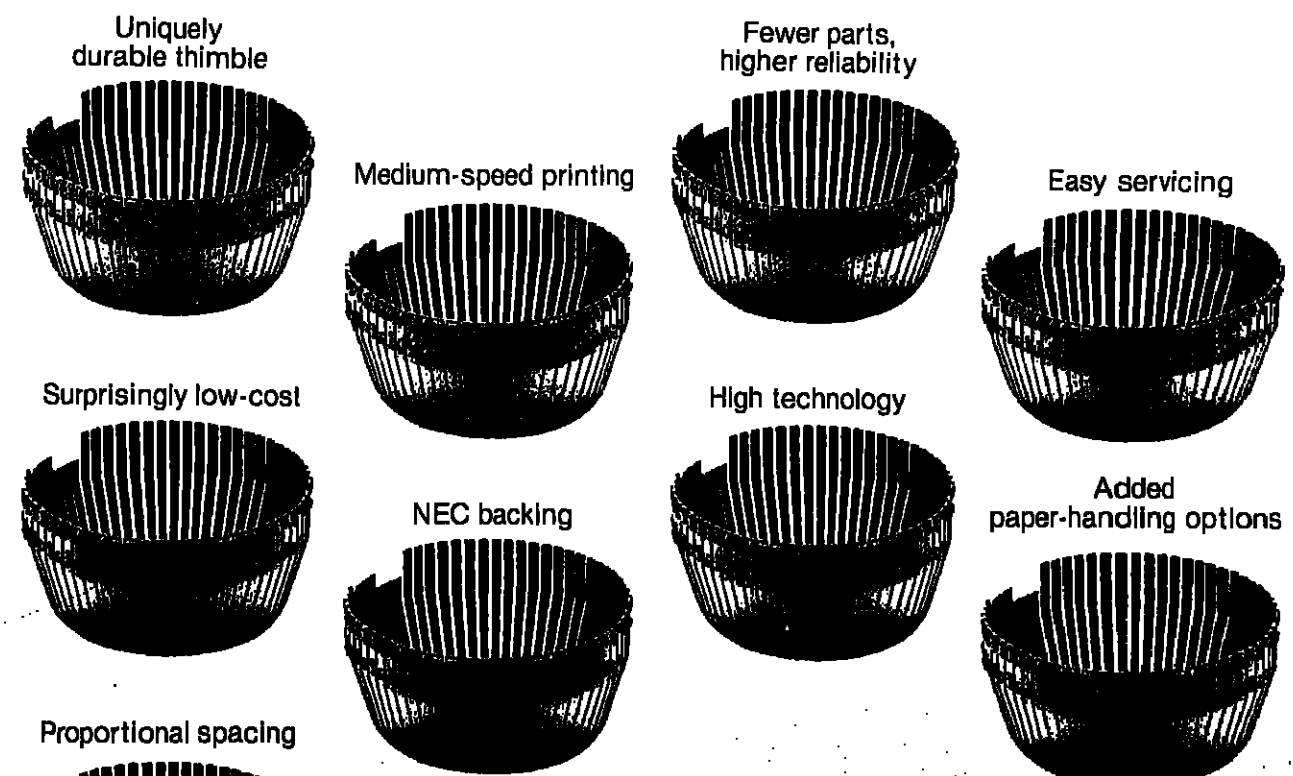
The Computer Sub-committee at the Commons decided in April 1981 that the NCR 299 machines used in the fees office should be replaced by an in-house minicomputer, the equipment and programs to be procured under a single contract.

The requirement was advertised as required by BEC/GATT regulations and followed formal tendering by shortlisted companies the contract has been awarded to Systime.

The system will be based on a Systime 6700 processor with 512 Kbyte memory, two 64 Mbyte disc drives, two printers, magnetic tape unit and 14 terminals running under the RSTS/E operating system.

It will be installed progressively over the next two years.

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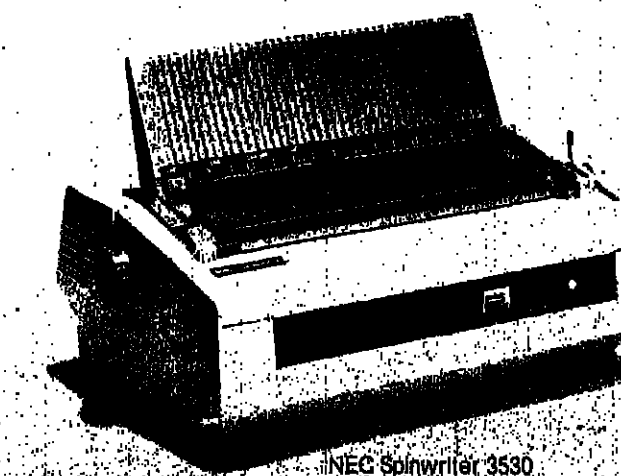
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'575,000 network connections by 1987'

by Donald Kennett

MUCH talk but little action is the current verdict on installation of local area networks. Distributed networks of all kinds in Europe will still have a total of no more than 3,000 devices connected to them by the end of the year, according to market researchers IDC Europe.

Installation should soon start in earnest, however, taking the number of connections to nearly 30,000 by the end of 1984 and to more than 575,000 by the end of 1987. At the same time the price per connection will fall from the current level of \$3,400 to \$1,400 in 1984 and \$380 in 1987.

These conclusions are part of a report to be published by IDC later this month. The report, Market Opportunities in System Networking - Western Europe 1981 to 1987, covers all distributed network architectures from local area networks to IBM's SNA and Digital Equipment's DECnet, but includes

star networks based on a single mainframe or mini.

Chris Wicka, IDC's head of European research, said that the market would gain a major impetus from the recent agreement by 20 computer and communications companies to support the ECMA standard for local area networks, as well as from the 300 or so that had taken licences to Xerox's Ethernet with which the standard is compatible.

This meant that the CSMA/CD (carrier-sense multiple-access with collision detection) access method would win out in the end, although IBM was expected to be one of the dominant suppliers with a hierarchy of networks having different performances.

IDC identified three categories of supplier: manufacturers of complete systems incorporating terminals and processors, in which the network was simply the means of linking their own equipment; systems houses which bought network hardware to use as compo-

nents of systems they would make up with equipment from many manufacturers; and those who would supply bare networks for users themselves to attach devices to. They would account for 200,000, 250,000 and 125,000 of the 1987 connections respectively.

Local area networks would seem to be an obvious pre-requisite for future automated offices and factories, but progress has been slow so far, perhaps because there are so many parts to be brought together, or maybe just because prices are too high.

"I don't think there will be too much growth this year," said Wicka. "But in 1983 it should take off now that many vendors have made their decisions on standards. IBM should be in a position to make its decisions and another indicator is that the office automation market is picking up."

Many suppliers were entering the market, he added, although mainframe and mini manufacturers were among the slowest to be-

come involved. For that reason they were looking to Ethernet licenses to provide ready-made subsystems.

The UK would be the European market to take off partly because it was an early strategy of the US companies, which would dominate the market overall, to tackle the UK before the rest of Europe. Before the rest of Europe, other countries would start coming up in 1984 and by 1987 West Germany would have overtaken the UK with more than 160,000 connections installed against the UK's 130,000.

Office automation would be heavily identified with the use of LANs, the researchers found. The companies planning to install LANs, 90% also planned to install word processors, 64% to install electronic mail, 56% to install electronic filing and 56% to install desk-top computers.

The 148-page report costs £9 if ordered this month or £12 after publication.

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US threat to quit French centre

by Jack Gee

LEADING US information technology figures who have joined France's State-sponsored World Development Centre for Microcomputers are threatening to withdraw their support following signs of increasing interference in the venture by the French government.

Jean-Jacques Servan-Schreiber, the writer and politician chosen by President Mitterrand as president of the Centre, has angered the American experts by proposing that the organisation should be attached to the French Telecommunications Authority.

French Telecom is a State-run offshoot of the Ministry of Posts and Telecommunications and Broadcasting headed by Louis Mexandeau, who has recently conferred with Servan-Schreiber about the project.

Nicolas Negroponte, the centre's director and Professor Seymour Papert, its vice-president, both members of the faculty of Massachusetts Institute of Technology, have already complained to Servan-Schreiber about lack of consultation.

The Centre's managing board has met only once since it was set up a year ago.

The second meeting was cancelled at a few hours' notice while the American members were on their way across the Atlantic to attend.

The Americans are criticising what they claim to be dictatorial behaviour by Servan-Schreiber. They insist that the Centre should abide by its initial mission to develop a personal microcomputer for use in France, and industrial and developing countries throughout the world.

The Americans fear that the Centre's purpose is now being switched to technology rather than better relations between peoples.

Their apprehensions appeared to be confirmed over the past few months when Servan-Schreiber refused to recruit social scientists to the staff of the Centre.

Some American information

specialists have recently refused invitations to join the Paris Centre and Negroponte has tendered his own resignation several times.

Servan-Schreiber was summoned to Washington earlier this year to attend a Senate investigation into a "brain drain" of American computer experts to Europe. Senators expressed concern that the Paris Centre might channel American know-how to Communist countries in Eastern Europe.

The French government early this week stepped in to keep the nationalised electronics firm Thomson in the semiconductor business. The French Ministry of Research and Industry instructed Thomson to cancel its plans to shut down the part of its Camaca subsidiary, a producer of the photo-lithographic equipment used in producing microprocessors. The Ministry now wishes Thomson to collaborate with the joint venture set up by French defence contractor Matra and US electronics company GCA to produce the same sort of kit.

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Some American information

Software family for complete DG range

SOFTWARE company Computerplan is following Data General up market with a family of software that will run on the whole range of Data General hardware, from micro to 32-bit minicomputer.

Formed six years ago with a "bedroom as an office and £100 of capital," the small £1 million a year company claims to be one of the largest suppliers of software to Data General OEMs worldwide.

Computerplan has been selling general accounting and vertical market packages based on CS-Cobol and Business Basic for Data General machines. It has now converted that software into Advanced Operating System and AOS/VS packages for the 32-bit MV range.

As well as selling to OEMs - some 80 in the UK and Ireland including Software Sciences, Data Logic, Frazer Williams, CMG and

SPL - Computerplan has installed 65 executive turnkey systems to small first-time users.

Computerplan managing director George Brown makes a "conservative estimate" of 1,000 installations of its accounting packages worldwide.

A major coup for the UK company was a contract to supply software for Data General's Enterprise microcomputer in North America, a deal which made Data General "our largest customer as well as our largest supplier," Brown said.

Riding in harness with Data General is a mixed blessing at the moment, with the US manufacturer going through difficult times financially. But after a difficult period up to the early summer, Brown says the introduction of the CS100 and CS200 products has improved the market substantially.

He expects Data General to announce new products soon. If it



BROWN... "DG our largest customer, largest supplier."

does, it might help Data General regain some of the initiative it has lost in the small business market.

Computerplan's premier products are its general ledger, and an English language program generator called Dataplan.



SABAN... "Not necessarily the best products that will survive."

Personal shake-out coming - Motorola

by George Black

A SHAKE-OUT in personal computers is coming, predicts Dedy Saban, European marketing director, for semiconductor maker Motorola.

"And it will be those with the best service and distribution back-up which survive - not necessarily the best products," he said.

Saban was giving Motorola's annual review of the market in London.

Praising the Olivetti machine, he said it had sold so fast that the makers were struggling to keep up with demand. "There is a boom ahead, but no room for all the types that exist at present."

The semiconductor business was facing a slowdown after a good first six months of the year, and there would not be any recovery until the second quarter of 1983.

Only West German and Scandinavian had a disappointing year so far. West Germany had missed the boat with microprocessors but recovery in West Germany was the

key to recovery in the rest of Europe because it was the biggest economy of the Continent.

The semiconductor battle of the 1980s would be fought out in Europe, because Europe supplied only 43% of its need. The US and Japan provided for 90% of their own needs.

Japanese penetration of foreign markets had been exaggerated, since they had only a 6% share of the US market and the same in Europe. But they had held on to their own.

Ten per cent growth in the semiconductor business was all that could be expected in Europe in 1983. "We may think of 10% as a disaster, but how many other industries would think of it like that? How many other industries would not be happy to settle for ten, five or even three per cent growth?"

The strongest markets for semiconductors had been in Britain, France and Italy, whereas German results had been poor.

SALES BRIEF

Accounting package £1m deal

A £1 MILLION deal has been made between Transtec Computers of Bristol and Paxton Computers to run Paxton's accounting package Business Desk on Transtec microcomputers.

Business Desk offers accounting features for small businesses. Each transaction is entered only once to update all files.

Police net

CLEVELAND Police have bought a £100,000 data communications network from Micro-Border of Reading. The installation, including modems, multiplexers and a port selector, is based in Middlesbrough. The Micro-Border port selector links terminals at police stations to three Data General computers and through them to the national machine at London.

College care

COLLEGES and hospitals in London will have their micros served by Micro Care, a member of the Micro Facilities group. Its contract, valued at more than £25,000, involves maintenance of ranges of micros under the authority of the University of London Purchasing Group.

Million mark

FREIGHT forwarding systems marketed by Management Control Systems of Ealing have topped the million pound mark.

The package was developed in conjunction with the Mandate freight handling company. It is estimated that more than 250 terminals will be used in the UK by the end of 1982.

Water control

YORKSHIRE Water Authority's new treatment works will be controlled by a system supplied by Base Ten of Farnborough. The contract is worth over £200,000 and the system will be installed at the Limbrey works, near Skipton, which are being built by Brierley Shell & Bear for the Water Authority.

Bank Maestro

MAESTRO, a new data processing support package from Philips Business Systems, has been named by Barclays Bank. It will go with £75,000 order for the Philips P7000 minicomputer system.

Telecom sale put off until after October election

by Donald Kennett

INDUSTRY Secretary Patrick Jenkin is resisting pressure from Tory back-benchers to sell part of British Telecom before the next General Election.

Department of Industry officials said that next October was now the most likely date for the election, and immediately after that would be the earliest time by which preparations for the sale could be completed.

Civil servants have been working on the outlines of the proposed legislation in time for yesterday's Queen's Speech at the opening of Parliament, and the Bill is expected to be ready by Christmas.

It is then expected to take until the end of the next session in July to pass through both Houses.

Jenkin has circulated to all MPs a paper answering criticisms of the privatisation proposals. He argues that selling shares is a better way to raise capital than borrowing. The dividend can be cut either if BT makes a loss or if the growth in its share values is enough to satisfy shareholders, whereas this cannot happen with the interest on a loan.

His paper goes on to say that the man and woman in the street can have a stake in owning an important national asset, while few people feel any sense of owning a State corporation.

Far from losing a national asset, the public will gain an asset that will be enhanced by becoming more efficient as a result of market pressure, it adds.

Market forces will also persuade BT to provide the best service it can to all its customers (not just businesses) so as to maximise the use of its most valuable asset, the



Telecom's shift to private sector to wait until after election.

network.

Making BT a public limited company will benefit its employees by allowing it to expand rapidly in response to a huge growth in the market facilitated by competition, the paper says. Privatising BT is a logical extension of the government's measures to increase competition, which have included allowing users to buy their own equipment from competing suppliers and permitting private firms to operate value-added network services, mobile telephone

services and an alternative telecommunications network.

Jenkin claims that competition in telecommunications will widen consumer choice, improve quality and bring down prices. Essential services covering rural areas, emergency calls and public kiosks will be maintained as a requirement of BT's operating licence.

And the Office of Telecommunications will have powers to protect consumers such as the Post Office Users' National Council never had.

Christmas lay-off as US sales sag

by Kevan Pearson

RECESSION-HIT US computer companies are shutting down factories for extended periods this Christmas to cut down the stock of unsold equipment.

Among those closing plants for more than the holiday period are Control Data, Burroughs and Data General. Exxon, the oil giant, is to stop production of some of its office products.

These are joined by Modcomp of Florida, the process control computer manufacturer, and Tektronix, which makes terminals.

CDC has announced that it is to close 21 plants over the period from three to five days affecting 9,000 workers, in addition to the normal holidays, to "reduce inventories". The plants affected will not be normal CDC factories, however. They are those of CDC's two joint ventures with other computer manufacturers, Magnetic Peripherals, MPI, and Computer Peripherals, CPI.

MPI is 70% owned by CDC with Honeywell taking 27%. The balance is owned by Honeywell's French affiliate CFI-Honeywell Bull. CPI is owned 60% by CDC, with Britain's ICL and NCR taking equal shares in the balance.

CDC recently reported a 12% downturn in profits for the third quarter to \$38.8 million, compared with the third quarter of last year.

Data General is also to close most of its manufacturing plants over the holiday period. It has not yet decided on the duration of the closures, and will make a decision after a look at its order books. The company had a similar close-down earlier this year.

And Data General suffered a further sharp fall in profits, this time by 95%, down to \$580,000, compared with a year ago.

Burroughs, which recently reported quite good third quarter results, is to close its word processing facilities in New York for the period.

Modcomp has said it will close during the latter half of December, and Tektronix has recently laid off 68 workers.

The third quarter looks like being particularly bleak for the US computer industry, with only IBM, Burroughs and Honeywell showing improvements over last year. Weak periods in the third quarter of 1981 led to some New York brokers displaying a marked disappointment with IBM's results. The company just failed to break the \$1 billion profit barrier with profits of \$944 million. In the second quarter of 1982 it just topped the \$1 billion mark for the first time.

Honeywell showed a dramatic turn-around after its first quarter results. Operating profits tumbled by about 50% on the previous year, to be rescued only by the sale of its share of the Gelsco bureau to General Electric. In the third quarter net profit rose 35% to \$43.8 million, on sales up 5%.

Personal computers for students

by Howard Karten

THE 1,000 students entering Clarkson College of Technology in New York next autumn will each be issued with Zenith Data Systems Z-100 personal computers.

The total package to be given to each student includes a 128K computer with 320 Kbyte floppy disc drive, VDU, two operating systems, modem, and several software packages. Each system is worth about \$5,000.

Most of the total cost of \$5 mil-

lion will be subsidised out of restricted grants, so students will pay only \$200 per semester, and a one-time maintenance fee of \$200.

Students will own their computers at the end of four years and "can take them to their jobs if they wish," college officials say.

Clarkson is the largest engineering college in New York and the first college in the US to make personal computers available to every student. Many US colleges make available to all students free computer time, via on-campus terminals connected to a mainframe.

Clarkson students will eventually be able to hook up with the college's IBM 4341.

The number of colleges with computer literacy as a degree requirement is climbing steadily.

Among the schools requiring computer literacy for graduation by all or most of their students are Harvard College in Cambridge, Mass., Stevens Institute of Technology in New Jersey, Carnegie Mellon University in Pittsburgh, and a few others.

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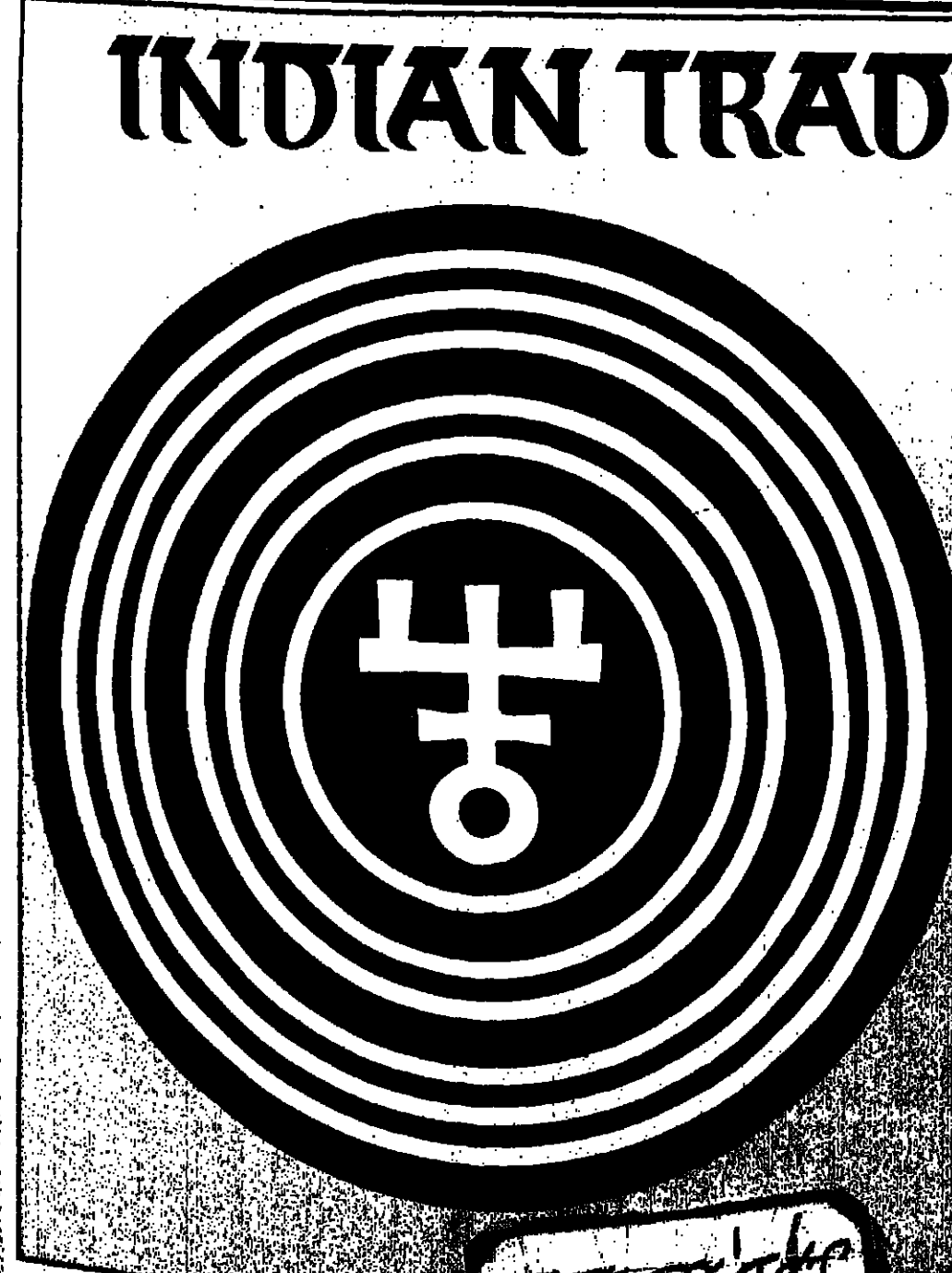
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The well-intentioned act of automating your office can often have the opposite effect to what was intended, alienating your staff instead of coordinating them, disrupting the workflow instead of coordinating it. Simply because people have a justifiable interest in not being overwhelmed by the technology that's supposed to serve them.

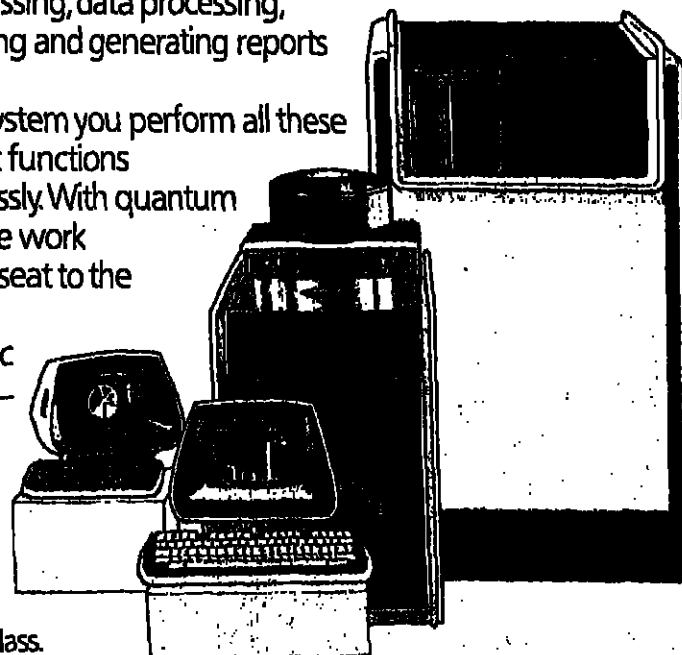
What distinguishes Data General's office automation system from most of the competition is the integration of all functions in one software package. CEO (the Comprehensive Electronic Office, based on our Eclipse family of computers) is marked by the extent it works for the users instead of asking the user to work for it.

In other words, you and your people can safely set aside your antiquated tools for word processing, data processing, scheduling, filing, communicating and generating reports and graphics.

With Data General's CEO system you perform all these basic information management functions electronically. Easily and effortlessly. With quantum leaps in productivity. Without the work environment ever taking a backseat to the technology.

For example, CEO Electronic

The Eclipse MV8000 is currently Data General's top-of-the-line 32-bit computer system. With support for 128 terminals, a MIPS rating of 1.1 and a double precision Whetstone rating of .995 it outperforms rival computers in its class.



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Data General

Motorola into car design

by George Black
TOP semiconductor maker
Motorola is moving into car design.

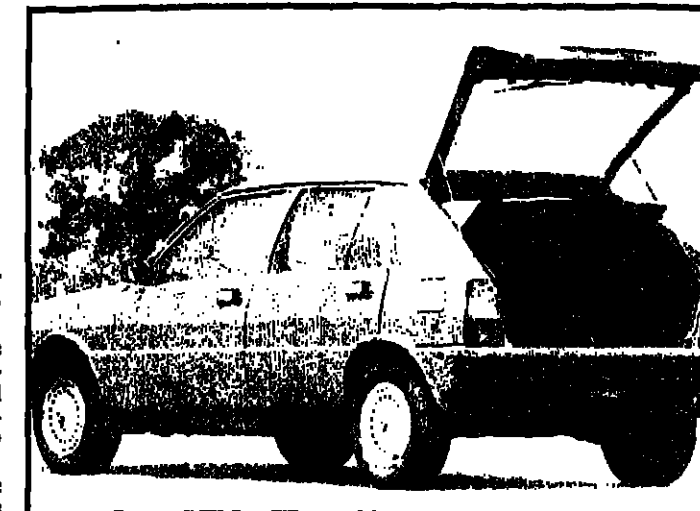
Half a kilometre of wiring inside a car will be stripped out and replaced with 65 metres of wire and ten of fibre optic cable, in a revolutionary new design pioneered by the company.

The announcement was made by Ernie Pusey, the company's director of strategic marketing, at a Press conference in London.

The "Motorcar" will be unveiled at the Electronica exhibition in Munich. A Lancia Delta has been used as a test bed for semiconductor applications in the automotive industry, and Motorola forecasts that its design will become standard over the next ten years.

It will not be going into the car market itself but plans to assist firms which want to develop the new systems.

The programme, carried out in Milton Keynes and in Geneva, has led to the invention of a number of new single-wire products. There is



A Lancia Delta... Motorola is stripping out the wires.

a power switch which includes TMOs power devices with CMOS decoders on the same chip. And the ignition has spawned a microprocessor called the MC6805S2.

The new design will drastically reduce the weight of future cars and means that lights, door locks, window winders, mirror positions, seat adjustments, windscreen wipers, stereo and clock can all be microprocessor controlled, as well as the engine.

In anticipation of marketing its products Motorola will go into mass production at its East Kil-

bride plant. HMOS and HCMOS wafer processing will begin there in late 1984.

The market for semiconductors in the automotive industry would triple in the next five years and would rise eventually to 10% of the total semiconductor market, Pusey said.

At present Europe lags three or four years behind the US car industry in the use of electronics. This was mainly because the US government had legislated against exhaust fumes, which had not happened in Europe, except Switzerland.

Plan to pump cable TV through the sewers

by Donald Kennett

THE Water Research Centre in Swindon wants to use the sewers to take the information technology revolution into Britain's homes.

It has responded to the challenge of the government's proposals for a national wideband cable network to carry many television channels and advanced interactive information services around the country by setting up a consortium called Cabletime with Micro Consultants, Link Electronics and Quantel, three image processing and television broadcasting equipment specialists owned by Kenley-based UEL.

The consortium plans to offer its design, based on conduit stuck to the roof of the sewer pipes, to cable system operators. It will install a trial system in Swindon next autumn.

The country's 10 water authorities are facing major maintenance and reconstruction expenses as Britain's mostly Victorian sewers collapse with increasing frequency

and the Water Research Centre has set up a special laboratory on its Swindon site to develop efficient reconstruction methods. The chief executives of the water authorities are all aware of the tremendous opportunity to combine maintenance work with cable installation and are determined to take advantage of it.

The Water Research Centre has three sites and Swindon is the one where its engineering, instrumentation and computing activities are based. UEL companies had supplied equipment to the centre previously and were keen to become involved with its developments for cable systems, which they see as probably being the only viable alternative to British Telecom's ducts.

They plan to develop specific electronic systems as soon as it is clear, as a result of government decisions, whether optical fibre or coaxial cable and switched or branching systems are appropriate.

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'DP managers jobs in jeopardy'

by George Black

INFORMATION and DP managers could lose their jobs when top brass find out that the micros they have bought won't do what they were meant to.

This warning comes from a new report on the progress of computerisation in big business, which paints a gloomy picture. The survey is the work of consultants Hel-drick and Struggles, who sent a detailed questionnaire to the UK's top 600 private and public companies.

"A few information managers who have done a good job may find themselves on the board, but the rest may well be in jeopardy," said H&S' senior vice-president Paddy Sandford-Johnson, commenting on the analysis.

"The majority of these managers will be unable to do anything else, having spent on average 11 years with a single employer and all that time in computing services, not in general management."

Micros were being brought in in a very unorganised way and people would discover that they needed more power than they had. They would have to wait until the price of that power fell - maybe in 1985 - to something they could afford.

The report predicts a boom in micro sales in the next two years, then tailing off.

Information technology was being introduced hardly at all in the manufacturing and engineering sector - and where it was coming in the move was completely unplanned and unco-ordinated.

"The attitude seems to be that we didn't invent it, so we don't want it."

In the distribution and services sector, information technology was arriving faster, but only in the biggest companies was it properly planned. Elsewhere it was haphazard and many companies had not bothered to avoid obvious pitfalls.

The resistance came from middle management and from shop stewards, not from top managers or from the workforce.

"Mainly it's the guy in his forties with 20 to 50 people working for him who has spent 20 years learning his trade and who is clinging on to his empire and to the things he understands," said Sandford-Johnson.

The outcome was that the rate of change would be far slower than the heralds of the computer revolution were predicting.

The typical management service director in one of the big companies in 1982 would expect to earn about £22,000 and in some of the very top organisations that figure might be considerably higher.

The report says that two-thirds of organisations with a turnover more than £500 million had a plan for computerisation and conversion budgets were growing at about 12½% a year.

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SOFTWARE FILE

Packages
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A TECHNIQUE to make financial packages compatible with any mainframe is claimed by the Manchester company Northern Software Consultants.

NSC's sales and purchase ledger software can now be run on IBM or ICL equipment and under various operating systems. And it is now working on converting the packages to other large machines. Discussions with DEC and Data General are in progress.

The work has been done in Norbol, an abbreviated form of Cobol which is expandable into full Cobol by a macro-processor. Conversion from one machine to another takes only six months, the company says, and costs a fraction of the amount needed to develop an in-house equivalent.

The NOR-SAL2 and NOR-PURLA2 packages run under IBM's OS/MVS or DOS/VSE with either CICS and DL1 or CICS and IMS/DB or IMS/DC and IMS/BD. For ICL they are available under VME on the 2900s with TPMS real time monitor.



ESTERSON... "Bringing history to life for children."

How computers
can help teachers

by George Black
HOW many times does the word "king" occur in Hamlet? Teachers who want to ask their pupils that kind of question - or those who need to answer if their pupils ask them - were able to pick up some useful tips at last week's first educational Software Fair at Hatfield.

One of three seminars which ran with the exhibition, organised by Chiltern Region Advisory Unit for Computer-Based Education, demonstrated information handling.

More than 1,000 teachers from all disciplines were there to get ideas on how computers could help them.

"They could find out how to use a computer to store the data from the 1851 census or to catalogue the periodic table," said the unit's Sue Jones. "We were not trying to tell them what they ought to do but to show them possibilities for any subject. The first act of Hamlet is

one of the things we now have on file."

There were more than 30 exhibitors at the fair, who included publishing companies, local education authorities and small software houses.

"Apart from subject teaching, there are also many applications in administration, such as time-tabling," said Jones. "The example we use is that if you wanted to know whether a bowls club could hold an event on a certain Tuesday afternoon in November then the computer would be able to tell you whether people were going to be free to be there."

Another seminar dealt with the difficulties of software distribution.

"Copying discs and sending them through the post is time-consuming and telesoftware is still expensive. The answer may well be Prestel or a mainframe link, but we really don't know yet."

Hatfield Polytechnic, a number of mainframes, which is dedicated to Hertfordshire schools, to education authorities and the polytechnic's information systems.

Derek Esterson, H&B computing, said the fair was most comprehensive so far.

"There is still too much of this show has lost to others and there were applications that could be right across the country."

"For instance, children find out who was living in a street 100 years ago brought subject of history for them."

There was now a variety of useful aids available to parents and mathematics teachers said, many of which were displayed at the fair.

Rank Xerox
have been advertising
their Local Network
a lot lately.

Perhaps they read this booklet, first published by Datapoint 5 years ago.

Rank Xerox aren't alone in suddenly discovering the importance of the Local Network. A lot of other companies are scrambling hastily onto the bandwagon.

Datapoint welcomes the competition. It'll be good for business. Even though it's been a long time coming.

It was over 5 years ago that we launched the Datapoint Attached Resource Computer (ARCNET for short - and our own name for the Local Area Network). Since then we have been installing, supporting and enhancing ARCNET by adding more capabilities, making better use of resources and opening the network to other systems.

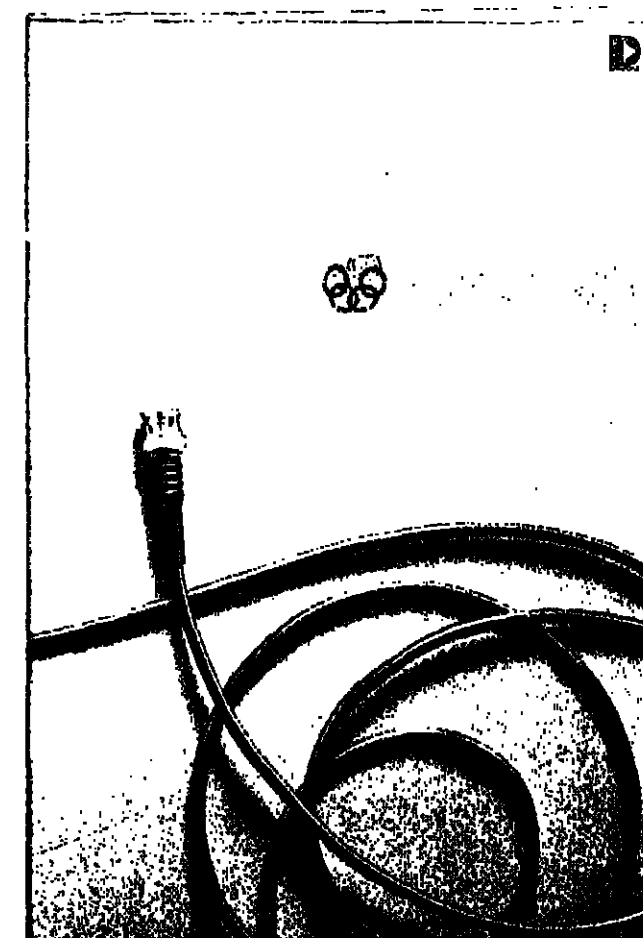
Today while most of the information processing industry is marketing first generation networks and promising second generation capabilities, Datapoint has moved into the third and fourth generations, incorporating integrated voice and data

communications.

In fact, Datapoint is so far ahead of the competition that estimates put our share of the British market for Local Networks at between 70 and 80 per cent.

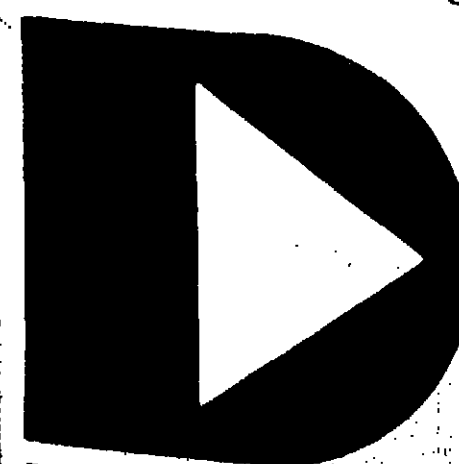
In round numbers, we now have 150 Local Networks, operating in the UK. That's more than all other Local Area Networks put together!

World-wide, it's the same story. But the figures are even more impressive: over 4,000 Datapoint Local Network installations. So we're not just number one in the UK, we're number one in Local Networks all over the world. And, whatever else our competitors tell you about themselves, they certainly can't say that!



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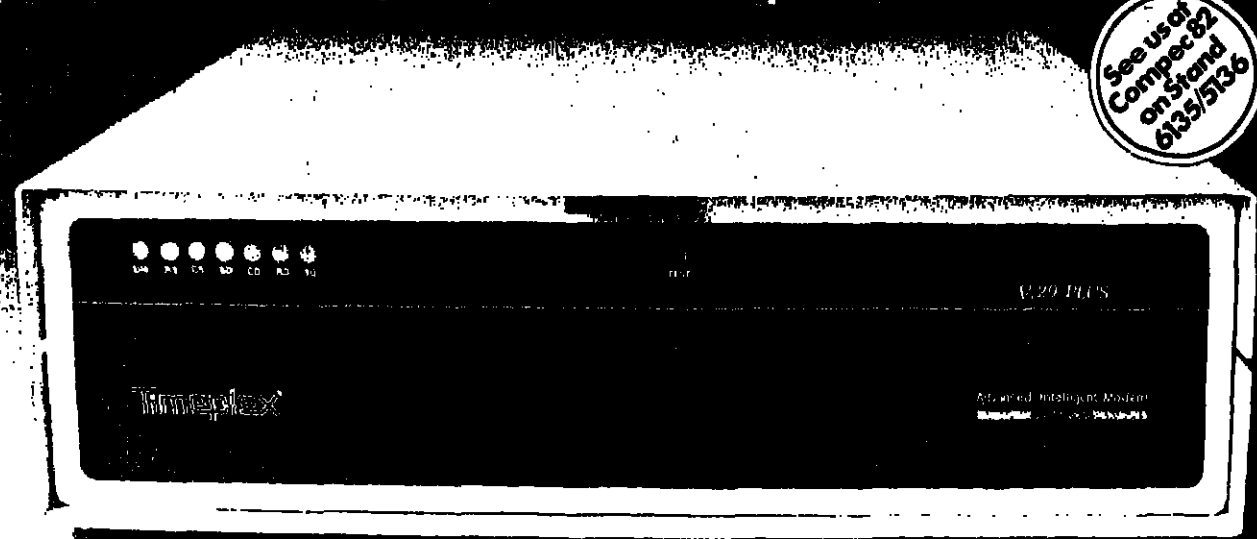
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Spreading
word on Unix

by John Kavanagh

THE Unix operating system has found the ideal people to spread the word about its features: the International Conference of Evangelists has ordered the first Unix System III application package from Root Computers.

System III is described as the first version of Unix to be aimed squarely at the commercial applications market.

The package was commissioned by Microlease, which is supplying the software with a Digital Equipment PDP-11/23 minicomputer to handle registration and administration for the conference in Amsterdam later this year.

Pascal on
the Vax

by George Black

A PASCAL compiler for the US for microprocessor development is in this country. The Boston Systems Office new software tool will be used in this country by Sciences of Parnborough.

"It will use the Digital host machine," explains Orchard of Software Systems PDP-11/RX version 11. For microprocessor development, BSO/Pascal enables an to be upgraded for a microprocessor.

It is available for 8086/88 and for the 6800.

Micromodeller user group

MICROMODELLER owners are to have their own user group - and it will be the first time such an association has been set up for users of a micro software package. The group is the creation of Philip Morris, the cigarette and soft drinks manufacturer, which is a major Micromodeller user, and the program developers Intelligence (UK).

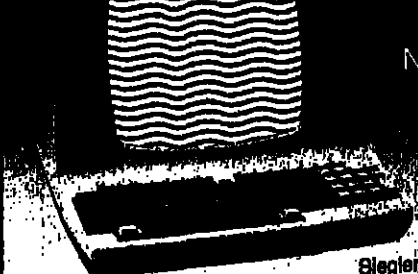
"Philip Morris has used the package successfully for budgets, financial forecasts and for supporting our pricing decisions," said the company's financial controller, Philip Matthews. "The user group

aims to invite ideas from users and gain from the experience."

The inaugural meeting representatives from 15 firms, including Shell, B. Royce and NCR.

Intelligence (UK) director Ashley Ward has been delighted by the association would be an important channel for the more about the financial program could perform.

There are 4,000 Micromodeller users in the world and 100 potential members in the UK.

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MICRO NEWS

'Eight- vs 16-bit battle is a fiasco'

by John Kavanagh

THE battle between eight-bit and 16-bit microcomputer suppliers over the best word length is a "fiasco" because there is very little difference in performance.

So says John Burnett, managing director of the eight-bit microcomputer specialist Southwest Technical Products. He hit out last week at advertisements for 16-bit machines, which present impressive hardware specifications.

"In 99.9% of cases there is absolutely no difference for the user," he said.

But Keen Computers' managing director Dr Tim Keen, who sells both eight-bit and 16-bit machines, said Burnett was being selective in his equipment comparisons.

The latest 16-bit processor chips such as the Motorola 68000 and Zilog Z8000 offered

performances approaching those of large 32-bit "superminis", he said. Burnett argued that many 16-bit machines used inefficient operating systems written in high-level languages. Unix, tipped as a future standard 16-bit operating system, was written in the high-level C language.

Southwest Technical Products' version of Unix, written in assembly language, meant the eight-bit micros ran more efficiently.

Burnett added that peripherals worked no more quickly with 16-bit processors because there were few 16-bit support chips. This meant those processors used eight-bit support chips, just as the eight-bit processors did.

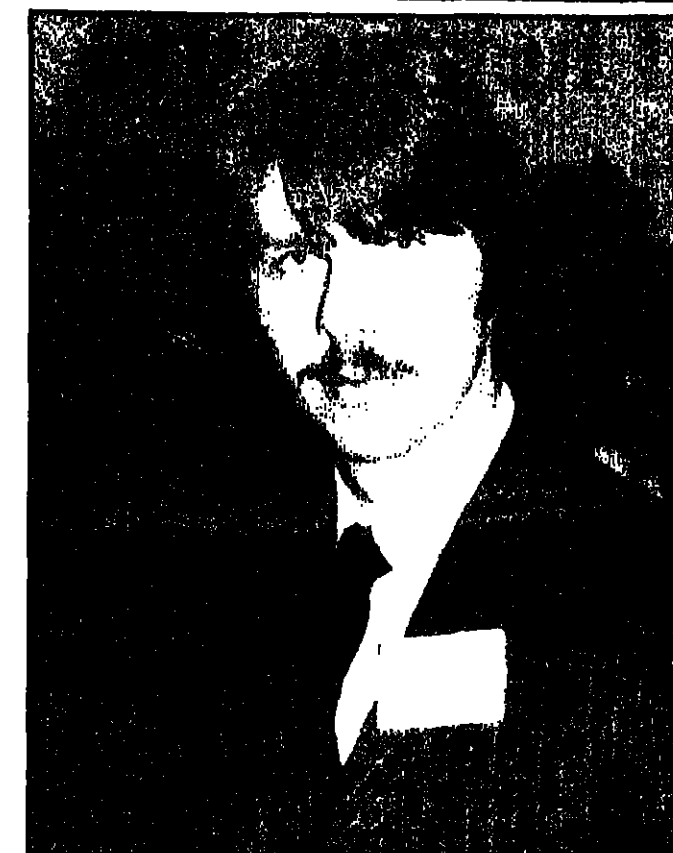
At the same time, modern eight-bit processors such as the Motorola 6809 had 16-bit internal registers, so the eight-bit chip processed data in the same way as its big brother.

But Keen challenged whether Southwest Technical Products had a true Unix. "Any version not written in C is not a true Unix," he said. "It is possible that a scaled-down version in assembly language could run faster in certain cases. But I doubt whether it would run faster on a 12.5-megahertz 68000."

"The support chip argument is true to an extent. Even the 68000 is short of support chips. But the Z8000 has a good range - that's why many companies developing 68000 processors take support chips from the Z8000 range."

Burnett and Keen agreed that there was now a good number of applications packages for Unix systems. These ranged from general packages such as word processing, database and modelling in systems for businesses as specialised as dairies.

KEEN... "Any version not written in C is not a true Unix."



Motorola's foot in UK graphics door

US semiconductor component and systems supplier Motorola is to gain a strong foothold in the UK graphics market.

The display specialist Terminal Display Systems of Blackburn is to be a Motorola franchised systems distributor from the beginning of next month, concentrating mainly on selling the 68000 board level products from Motorola in conjunction with its own graphics boards.

For TDS the appointment marks an extension to its main business as a supplier of display systems, seeing Motorola 68000 systems with colour graphics capabilities plugging a gap in its range. For Motorola it represents a strengthening of its systems distributor network through the addition of a company with specialist knowledge of the burgeoning graphics market.

To capitalise on the Motorola franchise, which TDS managing director Bob Astley sees as bringing in the ideal vehicle to satisfy the demand for more intelligent graphics workstations through the 68000 16/32-bit processor, TDS is also launching a colour graphics board designed for integration into a Motorola 68000 Versabus system.

The Versagraphics module was developed in co-operation with TDS's US associate Graphic Strategies. It is based on the NEC 7220 graphic display controller chip and gives 512 by 512 resolution in 16 colours, with 2D transformations and hardware zoom, and scroll.

Micro News is compiled by Robert Parry.

Scorpion's 1st choice is APL

THE Scorpion micro, launched by the London company MicroAPL, has APL as its first-choice language, the manufacturer announced this week.

Robert Bittlestone claimed: "Using APL you can have a system up and running before a Cobol analyst has finished writing the notes on the first meeting with the user."

Based on the Motorola 68000 16-bit chip, the Scorpion will be featured at the Compec exhibition.



PITTMAN... CP/M can go on Z8000 specially designed micros.

Z8000s to get CP/M

by George Black
THE CP/M operating system is to be linked to Zilog's Z8000 16-bit microprocessors, previously associated with Unix, after an agreement between the semiconductor manufacturers, an Exxon subsidiary, and Digital Research of California, the owner of CP/M.

"The biggest market will be for enhancing our components activity," said Zilog UK's managing director Phil Pittman. "People will be able to incorporate CP/M on Z8000 systems of their own design."

Zilog will continue to offer Unix

as well as CP/M. Most of the same languages as are supported by Unix will be available with CP/M by the spring of next year. These include Basic, Pascal, Cobol, Fortran, and APL.

Digital Research is to market and support the Z8000 version of CP/M and Zilog will get a licence to use CP/M in board and system level products.

Implementation will be on the Z8001 and Z8002 CPUs as well as on the virtual memory processors Z8003 and Z8004, which were introduced in August.

Unix System III for Onyx

ONYX 16-bit micros, distributed in the UK by Thame Systems of Oxfordshire, can now be run under the Unix System 3 operating system.

Thame, a subsidiary of Memory and Electronic Components, will continue to offer IS/1, the Interactive Systems version of Bell Labs Unix, Version 7, as an alternative for the Onyx C8002.

Thame has also added the Rair Black Box 3/50 to its micro range.

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What type of computer is your terminal connected to? _____
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Do you use Digital's Accessories and Supplies Group? YES/NO
Is your Digital hardware on one of our Field Service contracts? YES/NO
Complete the following sentence in no more than 15 words: I expect a maintenance service contract for personal computers to _____

For full competition rules please send an a.s.e. to the competition address.

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Official Entry

COMPANY NEWS



The rise and rise of Decision Data

THE spectacular recovery of Decision Data, the US-based IBM-compatible peripheral supplier, continues apace.

Third quarter sales rose 55% to \$19.1 million, while profits were 85% up on the third quarter of last year at \$957,000.

The British Technology Group holds a direct 15% stake in Decision Data, with a warrant to buy 25% more of the company's shares.

The stake, which BTG took via Data Recording Instruments, cost \$7 million, and conservative estimates suggest that the BTG share is now worth between \$14 and \$20 million.

The full nine-month figures for Decision Data show total turnover of \$53.2 million, more than the entire sales for 1980-81.

Profits for the nine months were

\$2.6 million compared with \$1.3 million in the first three quarters of 1980-81.

According to Decision Data's president Dick Schineller, the company's backlog of orders has now risen to \$17.8 million, a 51% increase on the order position this time last year.

Schineller also noted that the company was now in its seventh successive profitable quarter, demonstrating "a continuing ability to increase both revenues and earnings."

Much of the turnaround has come from the new IBM-compatible terminal launched by Schineller soon after he took over as president.

The terminal has sold heavily in both the US and Europe, and has enabled Decision Data to expand its overseas operation.

Results at Apple confound critics

THE best-known name in the microcomputer business, Apple Computer, has confounded the cynics and turned in annual results showing sales 74% up on last year.

The company, widely criticised for its tardy introduction of new products to follow the Apple II and III had sales for the year ended September 1982 of \$583.1 million, compared with \$334.8 million in 1981.

Profits followed sales and grew at 56% to \$61.3 million.

Although the overall growth rate slid from the 100% achieved between 1980 and 1981, the drop to 74% was small, especially in the middle of the worst recession for 50 years.

And Apple looks to have returned to higher levels of growth in the final quarter, with sales 80% up on the same quarter in 1981.

Sales for the fourth quarter were \$175.8 million and profits were \$18.7 million, a 71% increase.



HENSON... "Uncertain"

Prime keeps up growth

PRIME, the Massachusetts-based producer of 32-bit minis, has managed to maintain its 20% growth rate throughout the first nine months of what company president Joe Henson described as "a very uncertain economic environment."

Results for the nine months show sales at \$317.4 million, compared with \$265.1 million for the same period last year.

Profits rose to \$32.7 million compared with \$27.2 million last year. The 18% third quarter rise in sales was slightly below growth in earlier quarters this year.

Sales for the quarter ended October 3 were \$109.1 million, compared with \$92.5 million for the October quarter last year.

Profits rose to \$11.1 million for the three months, a \$1.5 million increase on the third quarter of 1981.

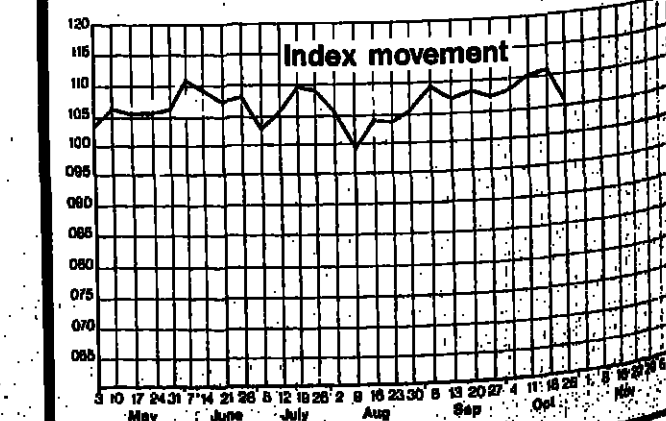
SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, lists selected computer companies that reflect the state of the computer industry.

Price	London Stock Exchange	Price	US Stock	Price	US Stock
High	Low	High	Low	High	Low
280	270	100	90	100	90
270	260	90	80	90	80
260	250	80	70	80	70
250	240	70	60	70	60
240	230	60	50	60	50
230	220	50	40	50	40
220	210	40	30	40	30
210	200	30	20	30	20
200	190	20	10	20	10
190	180	10	0	10	0
180	170	0	-	0	-
170	160	-	-	-	-
160	150	-	-	-	-
150	140	-	-	-	-
140	130	-	-	-	-
130	120	-	-	-	-
120	110	-	-	-	-
110	100	-	-	-	-
100	90	-	-	-	-
90	80	-	-	-	-
80	70	-	-	-	-
70	60	-	-	-	-
60	50	-	-	-	-
50	40	-	-	-	-
40	30	-	-	-	-
30	20	-	-	-	-
20	10	-	-	-	-
10	0	-	-	-	-
0	-	-	-	-	-

The table shows the closing prices in London on Friday and in America on Thursday. Prices are based on the prices of the UK companies in the table. Highs and Lows have been rounded up where necessary.

*Shares traded on the United States Securities Market or under Rule 15c(2)(e).



Company News is compiled by Kevin Cahill

ICT aims for Stock Exchange quote

THE desire for a direct quote on the UK Stock Exchange has been the reason behind International Communications Technology's bid for the listed UK firm Electronic Machine Company.

The bid, based on a one-for-one swap of EMC's shares, was criticised as unwelcome by EMC directors.

ICT, which is registered in Luxembourg and quoted on the Stock Exchange there, aroused interest and controversy a few months ago with the announcement that it was developing with the Conic Group in Hong Kong a £1,000 display and memory communications terminal.

The main development of the production of the Telenote terminal in Hong Kong was understood to be complete.

ICT president Cecil Kemm said the company intends to put up to four million of the new shares before 1984. Most of the shares to the end of this year, about 200,000 of the shares, have been produced, and will be for firm orders.

Kemm has not identified a source of the orders, although he has said that the target market is the device is the Telenote, which is in use in many countries, including the UK.

ICT recently put out a circular which showed a 1982 un-audited profit.

Kemm has not sought a quote on the US Stock Exchange and the bid for EMC looks tactical to achieve this strategy.

EMC's shares rose from 11.30p on news of the bid.

WORKPLACE

No redundancy fears for ops at this site — they've never had any!

MUCH has been written on the demise of the computer operator following the introduction of "operatorless" systems like the ICL ME29. Well, I can reassure those worried by this trend that at least one site with twin ME29s has not made a single operator redundant.

They didn't have any to start with.

Soleant Container Services in Southampton handles 250,000 containers a year and they hold anything from fruit to made-in-Hong Kong water pistols. This makes SCS the largest single handler of container traffic in the UK and it takes up three of the five berths in the Prince Charles Containerport.

Each of the berths has a 330 metre quay — large enough for 30,000 ton ships, five of which can be loaded and unloaded each week. The movement of the imports and exports through the port was once controlled by a system of cards and pigeonholes to indicate where each container was from, where it was going, and where it was located in the massive container park.

In 1974 an ICL 1902A was installed, with the intention to run it without operators from Day One. An online system based on ICL's Driver software was developed by the entire SCS DP team — three people.

"Rather than have a large number of people working on horizontal chains of the project, we decided it would be preferable to have two or three good people working on it vertically," says systems manager Mike Cherryman.

"With the same people working on every stage of a project, not only do you avoid the typical DP buck-passing — when the system doesn't work, the programmers blame the analysts, and the analysts blame the programmers — but the job interest is much higher and you can hang on to good staff much more easily."

"We have three development staff and no operators. The computer room is unmanned and

locked most of the time. The computer should be a black box which is kept out of sight rather than being used as an excuse for empire-building, as is often the case."

Each member of Cherryman's team is responsible for certain areas of operations. They determine system requirements, devise an approach, write the programs and implement the system.

All development is done via MAC terminals ("Everyone does program development on VDUs now — I hope," says Cherryman) and no operators are needed.

"Not even for backing-up!" I asked.

"We don't back-up," replied Cherryman disarmingly. "We don't stop the system — it runs seven days a week, 365 days a year. We even leave the emmys powered up over Christmas. We don't move disc packs, don't use tapes — we can't justify having any operators."

It's not that unusual to find ME29s being run without operators, but Cherryman admits ICL was a little surprised to find that SCS was running its 1902A, and the twin 1901Ts that superseded it, in the same way — eight years ago.

"No one had done it before," says Cherryman.

There is no standby power supply for the ME29s, and for good reason — all the dockyard equipment is electrically powered, so it matters little that the computers cannot be used during a power failure because the whole port stops too.

The SCS policy of leaving the machines powered up all the time, and leaving the disc packs on the drives, seems to be paying off too. Cherryman told me that there have been no hardware or software failures on the system for the last six months.

Just when I thought that SCS could hold no more surprises for an old mainframe operator, Cherryman sprung another one on me: "We don't have any routine maintenance either. It's cheaper to buy a second emmy than to pay for the sort of cover we'd need with a

single processor system."

There are no passwords either — is nothing sacred? ICL goes to all the trouble of developing a lovely little operating system like TME and along comes someone who'd rather get back to basics. "We've taken the operating system out of the way of the user," says Cherryman. "I'd like to get rid of the whole log-in sequence too."

"But surely you don't want to do all your work in one directory?" I asked, every last one of my preconceptions on how to run an installation lying in tatters around me.

"Why not?" replied Cherryman. "There are only two systems staff and we know what we're doing."

And what the system does is this: Details of each container are taken to the system before they actually arrive at Southampton. The containers may arrive by road,



CHERRYMAN... Prefers to use a bureau despite having spare capacity.

but most, 60%, come by rail on one of the eight trains a day arriving from all over the UK. The system controls the movement of containers between the railhead and the dock in order to coincide with the train schedules, and additionally produces a list of return loads from the containers arriving from abroad.

The system holds a model of each of the 28 ships using the port, and the containers are categorised according to voyage, port, weight and size. The machine thus calcu-

lates where the containers should be loaded in the ship to facilitate unloading at the port of delivery, and to ensure that the ship is stable.

There are currently 45 VDUs linked to the system. SCS employs 200 staff, most of them on one of the five shift teams which provide round-the-clock operation.

A point which came up more than once was SCS' insistence that DP should be an integral part of the company rather than a monolith sub-division as is all too often the case.

"We use computers as a tool, in the way you'd use a ruler, pencil or calculator," says Cherryman.

This is illustrated by the fact that although SCS has plenty of spare capacity on its two ME29s, it prefers to use a bureau for batch applications such as payroll.

"It's far cheaper to use a bureau," says Cherryman. "If we were to do it ourselves, we'd have to employ operators."

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Workplace is compiled by Philip Hunter and Andrew Thomas.

PUZZLER

THREE
SEVEN
TEN
TEN
TEN
FIFTY

GIVEN the fact that Y equals eight, you are asked to identify the remaining nine digits in this alphabetic, so as to make up a valid addition sum.

See page 45 for solution.

PLATFORM

Stop fighting each other for staff – and train your own

The author, David Blechner, is joint chairman of Star Computer Group.

HOW much longer is the UK computing industry going to rely on the large manufacturers or software houses to train its staff?

Traditionally, organisations like IBM and ICL have taken in trainees and put them through good in-house courses, only to find that a couple of years later they move on to other employers.

The problem is that the computer manufacturers have finite resources. They can only put so much into the training pool. Admittedly, the Manpower Services Commission, through its much-maligned Tops scheme, aims to boost the number of computing trainees – but no-one seems to want them.

The norm is that companies looking for programmers, analysts, engineers – even salesmen – demand two years' experience, with the result that software and systems houses are constantly competing with manufacturers and computing services organisations, using money and the promise of a creative environment to tempt them away from current employers.

It is time for the smaller firms to call a halt to this job-hopping merry-go-round and take on part of the training burden. Software and systems houses in particular should be more willing to take on inexperienced people.

This could be approached through some form of article clerk or apprenticeship scheme, similar to those of firms of professional accountants or solicitors.

However small – even if they employ only half a dozen people – the firm takes on a junior or clerk and, with the help of a principal to act as guide and mentor, trains the junior on the job, normally over a three- or five-year period.

Trainees could become proficient more quickly in the computing field, probably over an 18-month to two-year period.

Entry need not be confined to graduates, with companies' aptitude tests and other selection methods used to screen applicants. Once accepted, they should undertake regular examinations and be given study release for outside courses to supplement in-house training.

It would be easy to dismiss the idea of apprenticeships in computing, particularly as the management of the smaller companies seem hide-bound in their attitudes towards training, preferring to take on experienced people. But if they do not change their approach, the computing industry as a whole must eventually suffer.

It is a very much an attitude of mind – an attitude which unfortunately does not come easily to managers in the UK.

This attitude can be seen, for example, in the secretarial field. In the UK if a girl applies for a job as a secretary she goes along for an interview, where she might be given a typing test. If she gets the job, she is taken on, with the expectation that she has sound secretarial skills and that she will immediately become productive.

But any person moving to a new job needs some form of training. Whether it is secretary, clerk, receptionist or telephonist, they all need to be shown what to do.

In Germany and Switzerland, the attitude is quite different. When a new member of staff joins a company, the manager responsible spends time personally training them.

In other words, he or she acts as a mentor. This is what we need in the UK for computing trainees. Star adopted this approach some



PROFILE

The man who offered users a better deal

IMAGINE you are part of a large computer company and responsible for providing service to its customers in the South-west. Although your employer is a well-respected organisation, you feel it isn't doing all it could in providing the support you need to do your job properly.

Spare in short supply and, possibly because of its size, the company doesn't respond fast enough to enable you to keep the customers happy.

This is the situation in which Gerry Tufts found himself five years ago. And, rather than carrying on in this way, he decided to take some positive action. Tufts visited the customers in his region and convinced them things could be improved.

The users agreed to part with three months' maintenance charges in advance, which gave Tufts and his partner Brian Jones the required cash to buy spare parts and to start out on their own as a service company. Thus it was that the company that was to be-

come Data Type Terminals was born in October 1977. With a staff of four and a capital of £1,000, the company began providing the service and maintenance of terminal equipment in Wales and the South-west, formally adopting the name Data Type in May 1978.

As Data Type's business increased, it was able to diversify its operations. Starting in much the same way as other companies, it moved into the DEC OEM market. In early 1981, a major step was taken with the launch of the Smart 80 VDU, the first product to be designed and manufactured by Data Type itself at its Cwmbran factory.

The company was now in the enviable position of having doubled its turnover and profits each year since its formation. Further own-built products appeared, principally among them a graphics board for the Teletext range of terminals distributed in the UK by Data Type.

By the end of 1981, the company had attracted the attention,

and the money, of Citicorp Development Capital, a subsidiary of the US Citicorp bank. Initially, £325,000 was made available for Citicorp's reserves of £15 million. The cash injection was used to introduce more graphics products to the UK and to facilitate the acquisition of marketing companies across Europe to expand the company's base.

The first of the European purchases was the German arm of the failed Data Dynamics empire, Teledynamics GmbH, for £500,000. Shortly after the German takeover, a US subsidiary, Data Type Inc was set up, principally to manufacture graphics boards.

Again the money for the new operations was supplied by Citicorp, whose vice-president, Jo Sweet, now had a seat on the Data Type board. A further part of the Teledynamics came under Tufts' control in August when Teledynamics became the Swiss subsidiary of Data Type.

By now the company was, in Tufts' view, in need of reorganisation. With this aim, Data Type International was formed as a holding company for the UK, European and US operations. Tufts became chairman of the new company, and for the first time the company he had run since its formation passed out of his direct control.

Brian Wildeman was brought from Penny and Giles to head the UK company as it began production of a new range of graphics systems. Tufts is now looking for a quotation on the Unlisted Sales Market next year – and ambitions do not stop there.

"We are looking forward to significant increases in our business, so much so that we are hoping for a Queens Award for Export within two years," he says.

And with the acquisition of a Dutch company on the horizon and an anticipated group turnover in excess of £7.5m next year, would be unwise to bet against it.



TUFTS... "A Queens Award within two years."

DOWNTIME

Sinclair comes to the aid of the party

DID you see the party political broadcast (no, I thought you wouldn't have) on behalf of the Conservatives?

Among good reasons given for not changing direction at this stage was the towering achievement of Uncle Clive with models like the ZX81 "built not in Japan, not in Taiwan, not in the USA, but here in Britain and mostly in Dundee".

Well, I'm sure they're right, but I distinctly recall the week before in *Furze's* Uncle Clive said that manufacturing in Britain would

shortly be a thing of the past and all the factories were likely to be in the Far East.

What's a bit disturbing is that the last time the Conservatives chose a favourite uncle it was the high-flying Uncle Freddie – and you know what became of him.

And talking of Sir Freddie, I see that large computer companies, for example Digital Equipment and Hewlett-Packard, have taken advantage of management training offered by the Kepner Tregoe organisation. But one man when ap-

proached by Kepner told the company to get out coke. Yes, Sir Freddie Laker.

He had been invited to buy one of Kepner's management training manuals. His written reply was: "I have no need nor use for such a book."

Kepner managing director Brian Bentley now has Sir Freddie's letter framed. But was too polite to comment directly on Laker's more recent demise. However, one of Bentley's subordinates binned: "Now Freddie would fold the book secondhand."

Drifting to pastures green

AS the lesser landed classes continue their decline, many old country mansions face conversion or dereliction. Some become old people's homes, others hotels or country clubs. More recently, a few are becoming showhouses for UK high technology.

For there can now be seen a slight, but discernible drift of computer companies away from archi-

tectonic office monoliths, to old country chateaux.

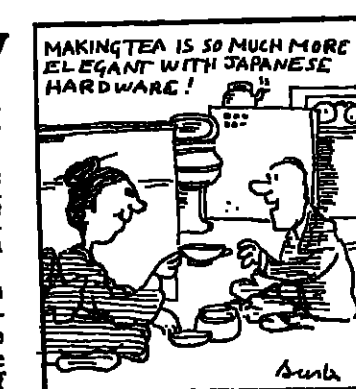
One such is Able Computer of Newbury, which has moved out of the town to a nearby country house in ample grounds – all the better apparently for visiting US executives to pass a peaceful night.

It must hurt some traditionalists to see Elizabethan corniche-laden interiors bastardised by VDUs.

New breed

THE big bureaux which sell time on mighty mainframes are slumbering to their death. But from their ashes rise a new breed.

Toronto is the venue for an experiment in a new form of time-selling. Patrons at the City libraries can buy ten minutes on a microcomputer for home accounting, letter writing, by inserting a \$1 coin.



MAKING TEA IS SO MUCH MORE ELEGANT THAN JAPANESE HARDWARE!

Shake-up for stirrers

THE art of tea-making was the subject of a two-year PhD thesis recently. The student concerned came to just one conclusion: that stirring the pot is a waste of time.

Surely there are 10,000 tea ladies who could have told him that, though doubtless I could find another 10,000 who religiously stir the pot at four o'clock every afternoon, and would disagree with his finding.

Meanwhile, inside the computer industry, research much more

relevant to tea has taken place. The Post Office at Chesterfield found a way of tapping the tea from its computer for tea-making. Energy conservation engineer J. Pashley, who installed the system, expects to save £800 a year on the gas bill. The amount of tea provided is 35 kilowatts, equivalent to 70 human beings, or powerful domestic electric lines. So while academic youth write in a vacuum, computer people tackle the world's problems.

Sage has the answers

AS Margaret Thatcher sweats under the spotlight of the Franks investigation into why she was caught napping when the Argies nipped into Port Stanley, she must be wondering why she did not talk to wise old Sage at the time.

Sage is the expert system generator developed by SPL International. One expert system it has generated for Shell to play with gives political advice on the wisdom of making oil investments in Third World countries.

The user of this political risk analysis system is led through about 50 questions to determine the likelihood of oil assets being nationalised, seized or blown up.

The system was tried on the Falklands using information available before the war. "A supreme risk of invasion by a foreign power," was the Sage advice.

And finally...

WHEN conference delegates return from a liquid lunch, speedily have to be dynamic to prevent a few eyelids sagging.

A more practical way of keeping awake than refraining from lunch is to keep track of how often one's eyelids recur in the speeches.

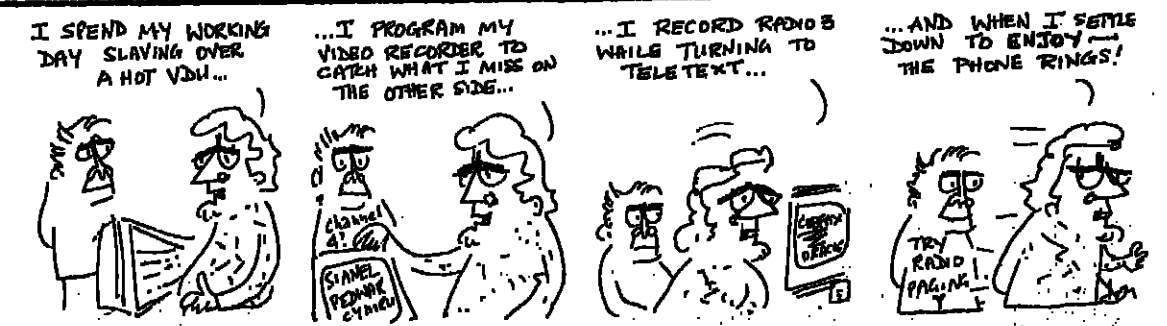
At the recent BIS fourth general conference, one speaker was urged to use the phrase "at the end of the day" three times in five sentences.

By such repetitions are children born. But it is only fair to point out that politicians and economists are also often guilty of "end of the day" and "at this point in time" instead of "finally" and "now".

When hearing such clichés it is worth remembering why they are said. Either the speaker is nervous or, as with many politicians, is nothing to say.

Liveware
File

by
Don



ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, November 4, 1982

Endangering the nation's recovery

ANOTHER government report has emphasised the need for increased spending on information technology. This time it has come in the form of a report to the Secretary of State for Education and Science, Sir Keith Joseph, from the Advisory Board for the Research Councils.

The sum is modest – £50 million over five years – but it is clearly seen in the context of a national programme such as one based on the recommendations of the Alvey Committee.

It is also clear from the Advisory Board's report that there is a growing belief from all sectors of the country that the government's policy on education and training is seriously undermining this country's ability to make full benefit of advanced technology. The report says that "severe cutbacks in the universities where so much of our science, basic and applied, is sustained, are now endangering the country's position in science and its capacity for recovery, and so eventually its competitive economic position in the world."

It went on to appeal to Joseph to "use your best endeavours to secure an increase in the science budget which will enable those opportunities to be exploited and help to mitigate the damage already done to the university research base."

In September ICL managing director Robb Willmot began the chorus of industry leaders criticising the government by saying the drop in enrolment on computer science courses was a disgrace. The Alvey Committee echoed his sentiments, and added that while it supported the government's intentions in putting a microcomputer in every school, on its own it would "merely produce a generation of poor Basic programmers".

We have said before on these pages that the most important resource of this country is not its oilfields or coalfields or agricultural abundance. The most important resource of the UK is its people. And the policy of the Thatcher government to pour educational resources into low level vocational training offers little hope for the country's future as an economic and social power.

The government makes much of the fact that its policies will secure a better tomorrow if only we "stay the course". There is nothing in its approach to education that gives us much faith in that call.

Poor response

THE industry's guarded acceptance of the Alvey Committee's report is a positive first step in getting an "advanced information technology" programme off the ground.

What is not so welcome, however, is the wholly inadequate response given to the report from its sponsors, the Department of Industry, and its Treasury paymasters.

The Committee's report provides an adequate, if not perfect, basis from which to launch the UK into the "electronic" age. And as many of the people and organisations contacted by Computer Weekly said, "It might have the details wrong, but we can sort those out once it is underway. The important thing is to start as soon as possible."

The Committee recommended an April 1983 start. Whether this can be met depends on the Queen's speech, delivered to Parliament yesterday.

That the industry, in all its many divisions – professional, commercial and academic – is prepared to back the report despite its reservations is ample evidence of how seriously the threat of rival projects is viewed. That it emphasises the importance of an early start, with early acceptance of the changes in the way the industry is run in the UK, is a welcome sign of a willingness to accept the changes in the way the industry is run in the UK.

The government, whatever its record on an economic front, has shown a commitment to information technology. It would be a great pity if, given the level of industry support, it were to back off from the Alvey report, as it did telecommunications industry.

1984 and all that...

THIS week's example of the strange things people say about computers was sent in by Mrs M. Jones of Rotherham, South Yorkshire, who wins £5. And in a few years we'll have our own home computers for self-defence. No more wading rooms or overworked doctors... IT's got to be good news.

Woman's Realm

LETTERS

'Wrong experience, no job' problem Exploitation of women

YOUR headline (CW, October 7) concerned the plight of Tops graduates should surprise no-one who reads the job opportunities pages of your newspaper. There is a diminishing requirement for the 12 to 24 months experienced College programmer, but an increasing requirement for people with experience in communications, databases, TP systems, software engineering, systems programming, real time command and control systems, avionics etc.

It seems to me that the MSC has failed to recognise the rapidly changing situation in the computing industry in which one notices that organisations do not now, as is suggested, have to take on trainees to replace people of the bottom end, mainly because the bottom end is a declining occupation.

This is partly due to the ease with which an internal candidate can be selected and trained to write bottom end programs. More significantly, however, an ever-increasing number of organisations are now designing complex software for the type of system mentioned in my first paragraph

using development systems and software tools which reduce the need for extensive source program coding.

Many applications are now, of course, designed and implemented parametrically, as witnessed by the thousands of small to medium firms which are using minis and micros without employing any professional computer staff.

The skilled end of computing will soon be adequately met by retraining existing skilled personnel, and by students emerging from the higher education sector with qualifications and experience in computing and related disciplines.

Your Profile article also suggests that there will be little room left for high level procedural programming languages on fifth generation systems. The "poor users" way into future computer systems will be by high level, non-procedural mechanisms including voice and graphics input/output.

I am familiar with the topics studied by Tops graduates. The MSC is currently training people for a job which the industry is run-

ning down. There is not, in my opinion, a "no experience, no job" problem but rather a "wrong experience, no job" situation.

In five years' time, a large number of people will be able to write computer programs, owing to changes in our secondary/tertiary education system. Also in five years' time, the computing industry will be so concerned about the "people cost" of computer systems, that any approach to system development and implementation which reduces the need for large-scale, low-grade application program source encoding will be taken on board.

Perhaps the MSC should design courses for someone called an "intelligent computer user". Such a person would have a knowledge of the technology of computer-based information processing systems, and be skilled at communicating with them. He could then be usefully employed at the interface between the user and computer department.

W.D. NASH
Fulwood, Preston, Lancs.

Exploitation of women

THE article by Julie Cotterill, "Growth in computer industry has led to the exploitation of women" (CW, October 21) has prompted me to reply, as it seems that the Women and Computing conference took a somewhat pessimistic view.

The advantages of the computer are considerable for women. Look at the jobs that are being created every day – the ever expanding computer media, with consequent journalism, advertising artwork, etc., the many computer exhibitions, the designers, the computer accessory market, the whizz kids of electronics – there must be a number of women among these.

The computer accessory market has certainly opened new horizons for myself. I work in an office in my own home, doing publicity for my husband's range of computer cleaning products and consequently have an interesting and ever-changing experience of industry in general.

A number of my friends who also have families or dependents prefer, like me, not to have a 9 to 5 job, travel in the rush hour, and arrive home exhausted to face the housework. Computers, data collection terminals, memory typewriters, etc. give us the opportunity of working at home, at weekends, or in the twilight hours when the children are asleep, instead of having to apply for work which would interfere with school times.

Perhaps the pattern of work, the hours, and leisure time is changing radically, and with the aid of the personal computer. Hopefully, human nature will blossom in harmony and consideration, for without this, the new age of technology promises to be very hard indeed.

HUBERTA KINGSBURY
Automation Facilities Ltd, Wargrave, Berks.

Making technology courses relevant

MAY I try and clarify some points regarding the letter from K. Parkins (CW, October 14).

I am surprised that he was offered a place at Surrey University for a course that was subsequently "turned down" by Tops. In my experience, albeit in a polytechnic not a university, course applications are only invited after Tops has approved the broad course objectives and has agreed to fund the course. A course for unemployed graduates which started at Trent Polytechnic, where I am a senior lecturer and a Tops course tutor, was discussed in detail nine months before the course start date, by MSC and several polytechnic representatives.

Far from being "unaware of the implications of IT" the Manpower Services Commission/Tops staff both locally in Nottingham and at MSC headquarters in Sheffield are actively interested in making sure that courses are relevant to growth area technologies such as microprocessor-based systems, fibre optics and robotics. The reason of course is to make any member of any of its courses ultimately more employable.

Interviewing candidates is (or should be) undertaken by a panel consisting of representatives from the academic institution, MSC, and, if possible, local industry, if the course is sponsored under the Tops scheme.

If Parkins gained his degree ten years ago then even a "diploma in electronics" which he seems to be little, would give him some awareness of the state of the art.

I hope that the bitterness he so obviously feels is not bought to the fore in any career interviews.

Dr R. A. COOKE
Sheffield.

Bureaucratic encounter

I WAS fascinated by Keith Parkins' account of his encounters with Civil Service Tops bureaucrats who had denied funding to a course in systems engineering (CW, October 14). It does indeed appear that the civil servants concerned had no technical knowledge of the requirements for information technology.

But arbitrary decisions on technical topics are commonplace in a bureaucratic body, such as the UK's Civil Service, which is devoted to the "cult of the amateur".

Scheduling system

WITH regard to the article (CW, October 7) by Claire Gooding on Computer Associates' product, CA Scheduler (late of Capex), I would like to correct the impression that this package is the first to supply an all-embracing method of controlling operations.

CSAR (Computer Scheduling and Reporting System) developed by Software Concepts Inc of Atlanta, has since 1978 been the only scheduling system that provides automatic job submission and on-line inquiry and tracking for both DOS/VSS and OS users. The DOS version of this product was written for this operating system and is not a converted OS version.

DOUG CORNWALL
Director
International Software Co., London W1R 1RE

Behind the times

CHAD's gossip (CW, October 21) is a little behind the times. Never mind about the fifth generation, his gossip hasn't even reached second generation.

I first heard the term "mush-room management" used in 1970 – by a DEC field service engineer, to describe his own department. I'm sure it was not new then, reputedly having been imported from the US; so it is now at least 12 years old.

ALAN FRANCIS
Milton Keynes

Automatic transfer

Part of the British malaise, no doubt, which of the "two cultures" will win out in implementing Britain's course in information technology, I wonder?

I. J. G. NATHAN-DOREY
Lancaster.

Equipment

WITH REFERENCE to your article (CW, October 7) regarding the introduction of Captec, an industrial system "which provides full hot standby dual processing, equivalent to those offered by Tandem for the commercial market", I would like to point out an inaccuracy.

The Tandem system is not a hot standby but a truly multi-processor system which has the ability automatically to transfer the workload from one processor to another in event of failure. During normal operation all processors can be used for productive work.

GEORGE WILSON
Marketing Manager

Tandem UK
Northolt, Middx.

Anniversary

THIS year sees the 20th anniversary of the Dunlop Computer Centre at Port Dunlop in Birmingham. To celebrate this event we have arranged a reunion for current and ex members of staff, to be held in mid-November.

If any readers, who are ex employees of the Dunlop Computer Centre, are interested in attending this function, they should contact me for details as soon as possible.

JOHN BOWMAN
Programmer Consultant,
Management Services
Dunlop,
Port Dunlop, Birmingham

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PEOPLE

Top award for HP chairman

DAVID PACKARD, chairman of Hewlett-Packard, has been presented with what is regarded as the highest award in the US engineering industry – the John Fritz Medal. The award recognises scientific or industrial achievement in any field of pure or applied science, and is given by five of America's engineering societies. Packard founded Hewlett-Packard in 1939 with his former Stanford University classmate William Hewlett. They initially operated from a garage in Palo Alto, California. Last year the company, which now operates in 45 countries, netted gross sales of \$3.58 billion. The award puts Packard in good company. Previous winners have included Alexander Graham Bell, Thomas Edison and Guglielmo Marconi.



PACKARD... "Enlightened".

This year's citation for the award highlighted Packard's "distinguished achievement as an engineer, entrepreneur, enlightened manager of people, industrialist and statesman in the application of advanced technology."

CPT, a US manufacturer of office automation systems, has appointed Kathy Devany as managing director of CPT UK. She joined CPT in 1974 and before her promotion was director of Eastern US dealer sales.

Atari home computers division has appointed Jack Knight as national accounts manager. He previously worked for Texas Instruments, where he was involved in the company's launch into the home computer market.

Lowfield Distribution, the Daventry-based grocery distribution company, has reorganised its management services department. Alan Purcell becomes management services manager. He joins the company from ICL where he was a senior business consultant. Reporting to Purcell will be Sue Elston as data processing manager and Rod Kerns as administration manager. Elston was previously a project leader in the management services department and Kerns was the company's administration controller.

Sapphire Systems, which recently announced details of a merger with software house Business Solutions, has appointed Roberta Blick as European sales manager. She joins the company from Olympia International where she worked in European marketing.

Peter Emery has joined Philips Business Systems Viewdata as sales executive. This follows a career with Telefonus and Redifusion, where he spent a number of years handling consumer electronics as audio manager and later district sales manager.

Dialogue Distribution has appointed Mike Heath as area sales engineer covering London postal districts. He joins the company from SGS, where he was a senior sales engineer specialising in telecommunications and military communications.



UK subsidiary of Canadian firm Geac Computers has appointed Bill Ross (above) as general manager, general systems division. He was formerly the company's sales manager, peripheral products.

Harris Information Systems' international division has named Alan Currier national sales manager. He has been with the company for five years.

New programmer/analyst in the finance and DP department of Redifusion Computers is Dermott Renner, formerly a freelance administrator.

Data communications company Jaguar Communications has appointed Reg Bundock as engineering manager. He was previously with Computer Automation for eight years, working in technical support.

The telecommunications division of Cable and Wireless has appointed Roy Michael as a sales executive. He joins the company from Rank Xerox, where he was a product specialist.

The Royal Bank of Scotland has appointed Harvey Macmillan as assistant general manager (DP). He has been with the Royal Bank since 1954, serving latterly as controller, systems development.

Independent software consultant Systems Designers has appointed Derek Larman as business development manager for the defence industry. He was previously with ICL.

Lambert Computing has launched Lambert Computing Inc, based in New York City, US. Responsibility for the US operation is in the hands of vice-president George Ellis, formerly marketing manager in the UK.

Tom Buckley has been appointed sales executive at the telecommunications division of Cable and Wireless. He will be based in London. He joins the company from Case where he was a sales executive responsible for word processing sales in West London.

Memory Computer Services has made two new appointments – senior analyst for its Northern office and a systems and programming manager. Dalin has left Lucas-CAV to become sales analyst and Raymond Nash has left Ever Ready, where he was systems development manager, to take over as systems and programming manager at Memory.



Keith Hall (above) has been appointed to the board of Apple Computer UK. He joined the company last May to head the UK operation and was elected to the board on the announcement of his new title and increased responsibility as sales and marketing director.

DIARY

NOVEMBER 8
Artificial intelligence – the extent of AI and its relationship with the fifth generation. IDPM Scottish branch, Edinburgh University, Students Association, 60 The Pleasance, Edinburgh. 7.30.

NOVEMBER 9
Stationary road show – forms design and systems construction. IDPM Sheffield branch, Grosvenor House Hotel, Sheffield. 7.00.

Information processing – how does it support top management? IDPM West London to Oxford branch, Bull Hotel, Gerrards Cross. 7.30.

Impact of the microprocessor on commercial data processing. BCS Croydon branch, Fairfield Hall, Croydon. 7.15.

NOVEMBER 11
Bob Jenkinson from IT82 will demonstrate the impact of the computer on people's working.

CONFERENCES

THE National Physical Laboratory has arranged a one-day meeting of four lectures on the life and work of Charles Babbage to be held on December 10. It has been organised in conjunction with the BCS and has been given financial support by IBM and ICL. The programme covers Charles Babbage and the applications of science, his mathematical work, programme for the analytical engines and the heritage of Charles Babbage in New Zealand and Australia. The fee is £10 plus VAT, including lunch and refreshments. Applications to D. Davies,

domestic and social lives. IDPM Essex branch, County Hall, Rainford Road, Chelmsford. 8.00.

Pascal-m: a language for the design of distributed systems. BCS Advanced Programming Group, Prudential Assurance, 142 The Cornhill, London EC1. 6.30. Details from Theresa Drew on 580 6622.

NOVEMBER 15
Fourth annual conference: Systems controls – the future. BCS Auditing by Computer Group, London Press Centre, 100, Book early through D. Mackay, Hacker Young, St Albans House, 2 Fore Street, London EC2Y 5DH.

Visit to Cranfield Institute of Technology Robotics. BCS Bedford branch. Apply to W. Chubb on Bedford 56013.

National Physical Laboratory, Teddington, Middx TW11 0LX. Tel: 01-977 3222 ext 3053.

A NATIONAL conference will be held on November 9 in Manchester will provide the construction industry with an opportunity to see how information technology can be used to advantage in the management of design office quantity surveying, contract management, operations and maintenance, scheduling and stock control and safety at work. It is being held by the National Computer Centre. Details from Nick Cole on 061-228 0521.

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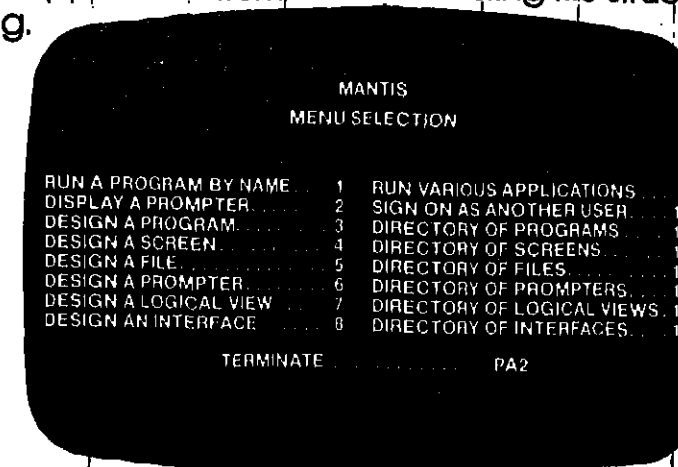
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DELPHIC POLL

Police Supt Dr John Hulbert measures technology awareness in the Force and asks how ready it is for change

A policeman's lot is not an automated one

MAN has always been fascinated by the future. It is not just an idle curiosity. The future encompasses the unknown, and the unknown is potentially dangerous.

Historically it has been prudent, as well as interesting, to attempt to enquire upon future events. Soothsayers, oracles and the Treasury economic model are just some of the instruments which have been used to prepare for an unknown and potentially hostile future.

It was an updated, but not essentially different objective which led my colleague, Chris Evans, and myself, to carry out a number of surveys during 1977 concerning potential future events in computing.

The people we focused upon were decision makers in the police

force. We asked them questions which were aimed at exploring their awareness and preparedness for potential changes in their professional and private lives.

This year, 1982, has been designated The Year of Information Technology. It has brought to a climax an unprecedented amount of computer science, which includes such notable contributions as the *Tomorrow's World*, *Chips with Everything* and *The Mighty Micro* television programmes.

How much effect has this propaganda had? Are our decision makers now more aware of technological innovations, and their likely effects? In order to find out, I ran a parallel of the original survey to try to answer some of these questions.

The Delphic Poll does not predict the future; it merely attempts to give an indication, albeit a pale one, of the way certain sections of the public are thinking.

The results of the 1982 survey are shown by the black boxes in Figure 1, below.

The first impression is the wide range of answers to most of the questions. To some extent this is an artefact of the display used. While the black diagrams are easy to read, they mask underlying groups. Plotting these underlying groups showed that they were arranged in two distinct bands. The "average" group, together with some optimists, clustered around the median and a little in front of it (that is the ridge on the box). The second group was a very separate and smaller band of pessimists who clustered around in the "After 2000" and "Never" regions of most questions.

The overall results tended to suggest that "the average police decision maker" was fairly pessimistic about most of the suggested innovations. None of the innovations was expected to occur before 1985 - even those which are already in the shops!

Comparing the 1982 survey with the 1977 results, we find that despite the apparent pessimism of the current findings there has been an increase in optimism from an even more pessimistic set of opinions in 1977. Overall the average year in which innovations are anticipated has moved forward by about one year for each of the questions. This is quite significant given the five years' separation between the two polls. Many people tend to anticipate a more important indicator is the fact that the "Never" vote over the whole range of questions has been halved during the five year period.

Significant changes can be seen in a number of the areas which were thought to be relatively imminent in the 1977 survey. These are "pocket machines for practising mathematics", "collators for recording changed criminal activity", "the use of computers for police training", and "major automated car functions".

All of these in the 1982 survey have suffered from a pessimistic reverse. On the other hand, "portable terminals", "talking and reading books", "changes to the letter post" and, perhaps most dra-

matic of all in effect, if not opinion, the possibility of a "20 hour working week", have all been brought forward in the later survey.

Comparing the "Never" vote, which tends to indicate effects on the pessimistic members of our society, we notice that overall the pessimistic vote has reduced considerably with virtually no significant increases in this vote for any of the questions.

There were spectacular reductions in the pessimistic "Never" vote in the areas of "ultra-cheap computers" where it fell by 24%, the "effects on minor car functions" and "talking calculators". In harmony with the result from the average respondent, the "20 hour working week", and "portable terminals" were all given the "thumbs up" by the pessimists.

An odd result concerns "police training" where the pessimists tended to increase their optimism whereas the average person became more pessimistic. This suggests that the consensus in this area is increasing. In other words the opinions are bunching up.

The surveys were for the most part anonymous and therefore it was not easy to be certain whether the pessimistic groups had any particular make-up. However,

other investigations suggest that the pessimistic groups may be senior in rank rather than merely senior in age. Certainly, as may be expected, the pessimists are not generally to be found among the younger element.

A considerable degree of interest, as distinct from knowledge, concerning technological matters was indicated by the fact that many people responded with additional questions. Many of these questions were angled towards problems which had a particular police orientation; in most cases they covered subjects where people found difficulties with current manual systems. Included in these were:

- Methods for reducing the enormous amount of paper work.
- Assistance to control manpower resources.
- The management and administration of major enquiries, such as the Yorkshire Ripper and the Red Brigade.
- Improvements in career development, personal assessment and placement, etc.
- Aids to improve the quality and consistency of police management.
- Improvement in communications both within and between forces to combat difficulties

with travelling criminals and mobile population.

- Improvements in the complex problems of searching for fingerprints, and other clues.
- Finally, that much suspected possibility of a database of personal information.

There were a few changes in the type of questions asked in the later survey. In 1982 there were fewer questions asked about functions which is surprising considering the squeeze that local authorities have placed upon local authorities and thereby indirectly upon police forces.

There were a number of questions about the public confidence in the capability of computers. It is obvious that the spectre of a million electricity bill to a widow living alone is still with us.

There were a number of questions concerning potential changes in the pattern of crime brought about by technological advances particularly electronic ones. There was a general feeling that police forces were unprepared for any such changes.

Dr John Hulbert is the force computer officer in charge of the design and implementation of computer systems within the Devon and Cornwall Constabulary. He is a police superintendent with 3 years' police service.

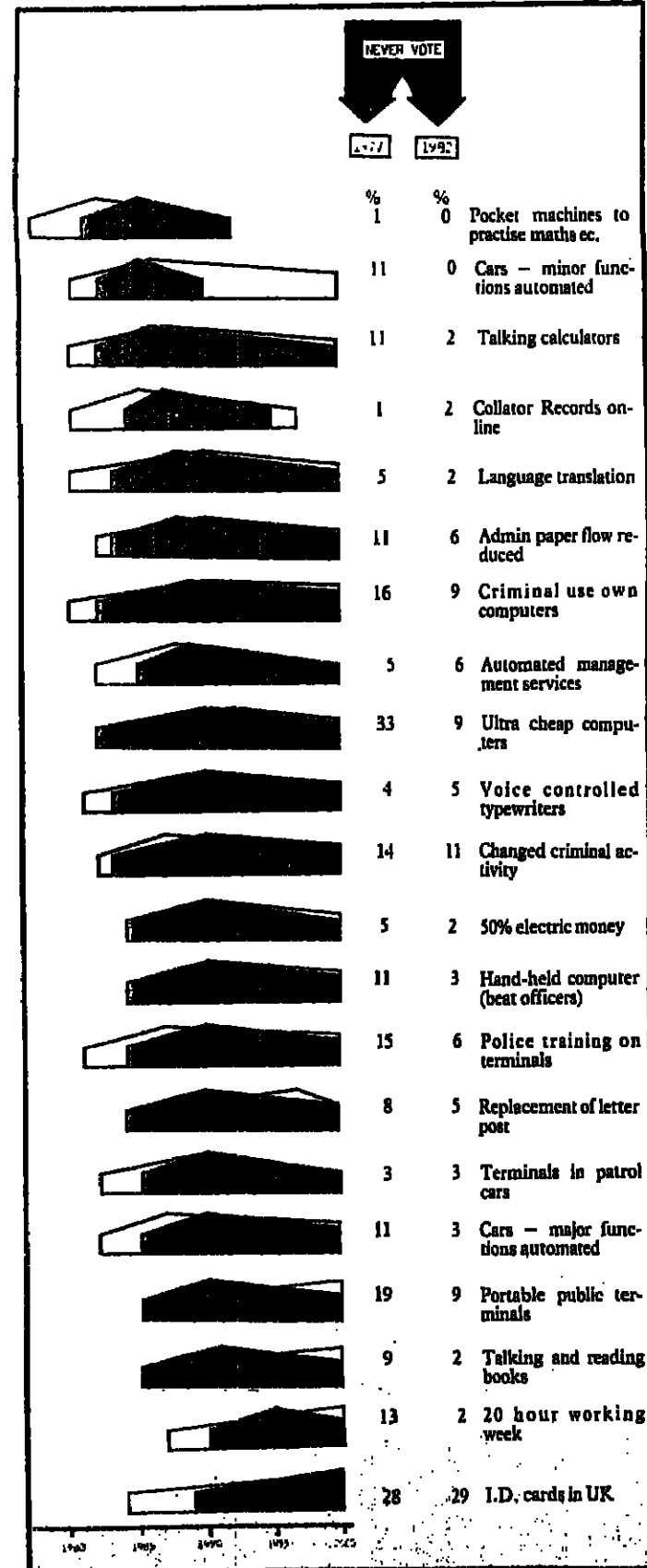


Figure 1. Dates when year innovation is anticipated.

How the survey was carried out

THE METHOD for administering the Delphic Poll is relatively simple. A questionnaire is produced which contains a list of possible developments. Beside each of these statements are a number of boxes indicating the year in which the respondent thinks that the statement may come true. In this questionnaire the years ranged from 1977 to 2000. There were also boxes for "After 2000", and "Never".

The respondents were asked to go through the questions quickly and tick the year in which they considered these events would occur. In addition, on this questionnaire people were invited to append items which they would like to have included in the questionnaire.

The main method of analysis is first to cream off the earliest and latest 10% in order to remove extremist groups. Then the median, that is the year which received the most votes, for each of the questions is plotted on a graph. The graphs for the two surveys which were conducted can be seen in the diagram. The black figure is the latest 1982 survey and the white shape is for the results obtained in 1977.

The graph for each question is in the shape of a little house with the highest point indicating the year at the mid point of our sample (the median year). The front of the house indicates the position of the first 10% and the back of the house the position of the last 10%. The

and does not indicate any statistical effect. This method of analysis is crude but quite effective, given the subjective nature of the data.

Generally if the houses are squashed up it tends to indicate that people are in agreement about certain matters. It does not mean that they are right - it merely means that they seem to have a common view of that particular question.

The persons surveyed were chief inspectors and superintendents in the police force. This group was investigated because it was felt that they were likely to make up the bulk of major decision makers in the next decade or so. It was therefore of great interest to find out how prepared they were for potentially significant changes in

technology which might affect their work and private lives.

The results of the 1977 survey were written up in a number of articles. About 100 people were asked to assist with that survey.

I approached the same group in 1982 with the objective of carrying out a repeat of the 1977 survey using exactly the same forms. One of the original group could not be contacted, and one of the others had died. Of those left, 40 had responded to the survey, which was again quite a good response.

The degree of enthusiasm was indicated by the number of questions that they were prepared to answer, and also letters that they sent me regarding their views.

SOFTWARE MONTH

City well stocked with pinstripe packages

IN 1972, in a joint venture involving the London merchant bank Arbuthnot Latham, the Arbat systems house was born. Now, 10 years later, with a worldwide professional staff of over 200, and offices in London, New York, Bahrain, Singapore and Hong Kong, Arbat has announced its new generation of integrated systems designed to take the international banking community through the 1980s.

Arbat is one of Digital Equipment's chosen few, and the new Series 700 International Banking Systems is based around the company's Vax range of super-mini and the VMS operating systems. Earlier versions of Arbat banking software had used Arbat's own operating system, Aims.

But in a significant policy change and a major conversion

THE City and its financial institutions have long been a prime target for the computer industry. The sheer volume of the work to be processed and the speed with which it is required, coupled with an almost traditional readiness to embrace new technology and new business concepts, have all combined to pin-point the international banks, share and commodity trading institutions, and large insurance and re-insurance organisations as important customers for computer hardware and software manufacturers. It is hardly surprising, then, that the City itself should turn round and become a leading light in the supply of City software.

Itself is composed of 17 separate but integrated modules. These include foreign exchange and money markets which provide the operational areas of international banks with access to data through specially designed terminal equipment; commercial loans (providing real time drawdown facilities, floor and ceiling rates and repayment scheduling); electronic funds control and transfer systems (to assist in the rapid transfer of funds and data around the world); and a flexible connection to the worldwide Swift network.

DEC itself is heavily and directly involved in City software. Early this year, for example, the company announced a contract with Barclays Bank that could eventually lead to the installation of a PDP/11 with comma and special packaging by DEC's special systems group in each of the bank's 2,200 branches.

Hill Samuel & Co is a merchant bank that has already committed itself to DEC hardware, with 11/70s in London and 11/44s in Dublin, Jersey, New York and South Africa. The smaller 11/04s are also used in the retail branch banking operations in London, Bristol, Birmingham, Manchester and Glasgow.

"The mainframe system we had been using," commented Archie Reid, head of the bank's management services in London, "had become cumbersome, inflexible, complex and expensive to maintain."

"We realised that distributed processing offered us the proper tools to design systems specifically for individual business needs by automating at the source transaction level rather than at the accounts level. It was also foreseen that this would provide increased productivity and improved control and management information."

Experience has shown that productivity in, for example, the foreign exchange settlements department, has increased by between 300% and 500%.

Bankers Trust, with its European computing centre in London, is the eighth largest bank in the US. It also carries out distributed processing with DEC equipment. By the end of 1981 it had over 40 DEC systems, mainly 11/70s and 11/780s, operational around the world.

The London computing centre comprises two separate clusters of three 11/70s and a third cluster of an 11/45 and an 11/35 (soon to be upgraded to an 11/70) that provided one of the first foreign exchange systems of its kind in London.

One of the two 11/70 clusters is used for UK processing, one system for remote data entry, one for communications, and the third for back-up and future development. The second cluster provides online computing support to most of the bank's other branches throughout Europe.

plete, this cluster will be supporting 38 remote terminals; six in Madrid, four in Jersey, 10 in Milan and 18 in Paris.

The drift away from large central mainframes is not limited to Hill Samuel and the Bankers Trust. Filetab Support Services has City users at Schroeder Life, Anthony Gibbs (a pension fund database management system written under RPL), the Financial Times and the Economist.

Richie McGladdery, managing director of Filetab, commented: "The computing needs of the City money markets are changing rapidly. As other financial centres in the US and Europe become more aggressive and competitive, the City financial managers need instant fingertip control over their computer systems."

The large batch processing machines are fast disappearing and being replaced by online computers with networking facilities.

The latest hardware, such as that manufactured by Digital, is readily available, and new software tools, such as RPL and RQL, make the money managers' task of installing and operating the latest technology that much easier.

"This, allied to their extensive experience in the financial markets, is necessary if City managers are to win and maintain a competitive edge over their rivals in other countries."

Strange as it may seem, DEC does not have a complete monopoly in the minicomputer range. Currently being implemented by Perkin-Elmer for a multi-company Lloyds Insurance Broker, Market is a comprehensive online insurance broking system. It is fully

integrated with embedded software links between the text processing slip and cover note preparation, and the data processing of risks and claims, and between the latter and the accounts system.

At the same time, it is modular to allow further sub-systems to be implemented without inhibiting the final phased integration.

Market is a menu-driven system with screen entry forms specific to each type of insurance - identifying, for example, direct open market, client covers, brokers covers and bordereaux, binders and delegated binders, facultative, XL and proportional reinsurance.

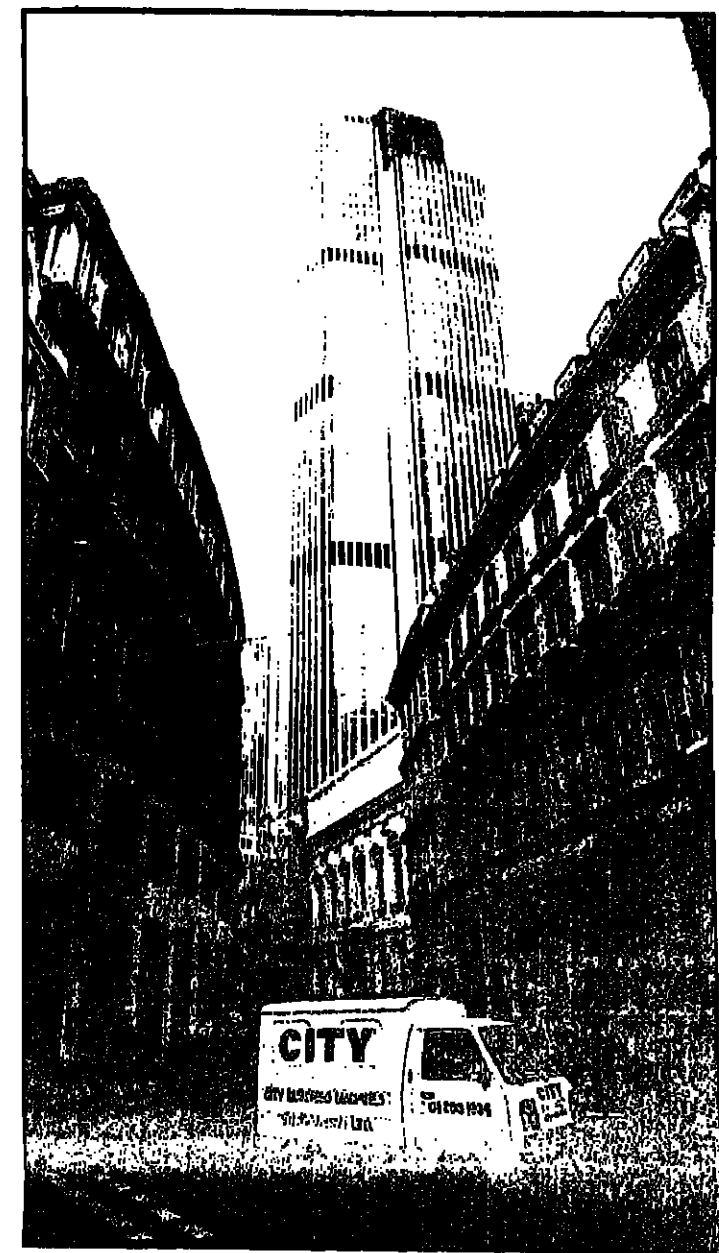
Linked to the risks and claims processing systems is a sub-system that records and monitors all progress on these functions, and provides several years' online historical data for all risk and claim transactions.

The Perkin-Elmer Relational Query Language (RQL) applied to this data provides a virtually unlimited choice of statistical and analytical reports, both specific and by exception.

The accounts sub-system observes the principle of self-balancing postings, and is structured for multiple company and multiple currency accounting. Procedures are provided for simple reconciliation of bureau and non-bureau underwriter statements, and those for Lloyds are designed to accept magnetic tape input from LPSO.

George Pearson, designer of Market, claims: "Any comprehensive Lloyds Broker System must be very heavy in I/O, and consequently requires the power and data transmission rates of a 32-bit processor. It is not insignificant that Perkin-Elmer launched the world's first 32-bit mini some eight years ago."

Nixdorf Computer is the European market-leader in the banking terminal market, with an installed base of more than 5,000 systems. Recently, the company has taken an aggressive attitude towards the UK's City market, with the introduction of the 8864 hardware series, the Nixdorf Integrated Banking System On-Line (NIBSOL), and the establishment of a new finance division to offer



The City has long been a prime target for the computer industry.

specialist services to the UK finance market.

This division has been split into three branches - Finance Branch, North, Finance Branch South and Midland Bank Branch. There are, of course, no prizes for guessing Nixdorf's primary customers so far!

The Midland Bank recently placed an order for the Nixdorf 8864 distributed banking system valued at more than £8 million, to be installed in 450 selected branches throughout the country.

Each branch will have a branch controller with up to one Mbyte of main memory, 20 Mbytes of Winchester and 0.6 Mbytes of floppy disc backing memory. Up to six workstations will be connected via

the branch controller to Burroughs mainframes situated at Bootle and Brent, and the distributed stations will handle local account enquiries and customer transactions.

Andy Coleman, chief project manager in the branch systems department of Midland Bank, said the bank selected Nixdorf for a number of reasons: "The company satisfied our evaluation criteria, and the 8864 financial terminal system is a quality product, well engineered and consisting of a complete range of banking terminals. The order was placed earlier this year, and we are now in the implementation stage, well ahead of schedule."

"We installed the first system in a bank branch in June of this year and now have 62 systems and more than 170 workstations operational. Installations are proceeding at the rate of eight per cent per week."

Other Nixdorf customers for the 8864 include the West Bromwich Building Society, where the system will initially provide enquiry facilities to the Society's mainframe and will later include pass-book updating and word processing locally within each branch, and the International Bank of Japan.

Finally it is worth mentioning two software packages supplied by Geest Computer Services Ltd - a soft commodity trading system developed for London commodity traders Volkart, and a comprehensive property management system. Both systems run on T1 minis.

The property system, designed to aid the management of a property portfolio, comes in four main parts: property management, rent demands, insurance premium calculations, and recording and financial accounting.

The principal application for Volkart's commodity trading is the futures market. It is initially being set up for trading in cocoa and coffee, although the parameter-driven design will facilitate its use across a broad band of soft and hard commodities.



Nixdorf's 8864 banking terminal system at work in the Privatbank in Copenhagen.

Financial institutions cash in on the micro success story

THE great hardware success story of the last five years has been the meteoric rise of the eight-bit microcomputer — soon to be followed by a similar occurrence with 16-bit micros. Within the same period, micro software has been dominated by two disciplines: word processing and financial modelling. Both have their relevance to the financial institutions of the City.

One of the better-known word processing concerns is Wordplex, a Canadian company with such a UK bias that its software development centre is located not in North America but in the UK's Software (Thames) Valley.

An early consequence of this location is the development of a Prestel interface designed and produced at Windsor for the Wordplex 80-3. This provides the office with access to all the financial and other data available from Prestel via a standard piece of office equipment — the word processor.

But by using a word processor, information can be transferred to floppy disc and stored for further viewing (thereby reducing phone calls), or edited and printed at will, and as often, as required.

Word processing, of course, has its own validity within the financial market. Girobank, for example, this year ordered five 80-3s, worth a total of £42,000. Two machines are for the Bootle headquarters, two for the Liverpool office (including one in the financial director's office), and the last one for the City's Milk Street office. Using the system's data communications facility, all five will be integrated into the National Giro Network.

Insurance is another target for the word processor. CE Heath & Co, one of the nation's leading and largest insurance brokers, uses a combination of IBM mainframe (for data processing and records management), and Wordplex word processors for document generation.

The hardware configuration is based on two Wordplex shared logic systems located at the South-end DP centre, and a number of standalone 80-3s at the London headquarters, with a multiplexing modem link between the two sites.

The applications are traditional word processing, ranging from a library of standard letters used by the claims department to the production, maintenance and presentation of "experience figures". One of the more recent applications involves the generation of policy documents directly from the data used to produce the Lloyd's slip.

The slip, a document that describes the risk for potential underwriters contains virtually the same information as that used on the actual policy document. A little WP editing saves considerable retyping.

Digital Equipment has made almost as many inroads into the City institutions with its word processors, notably the WD78, and more recently the DECmate, as with its minicomputers. Citibank, for example, has more than 90 systems in its London offices. Apart from the list processing and, in the case of the DECmate, the mathematics capabilities, one of the main attractions of these systems is at communications capabilities.

About 15% of the word processors at Citibank are connected to

an internal electronic mail system that can deliver messages to over 200 mailboxes throughout Europe. Furthermore, about 20% of these word processors can interface into Citiswitch, the company's own internal global communication network comprising four nodes — one in London, and others in New York, Bahrain and Hong Kong.

According to Peter Vickery, resident vice-president in charge of office automation at Citibank: "It is our policy to provide WP facilities to every secretary in the company. We have already found a considerable increase in productivity in all departments with the installation of word processing facilities."

Behind word processing, the most prolific software on the general purpose business micro market is the financial modeller. So powerful and so versatile are these systems that their usefulness stretches from the high street newsagent with SimpliCalc on a small Pet, to the multi-national City-based corporation with a network of 16-bit micros each operating the powerful Micromodeller package.

Arthur Forrest, a senior financial and planning specialist with ICF Consultants, the management consultancy subsidiary of Finance for Industry, commented: "Computerised modelling has revolutionised the financial planning process. While the future will always be difficult to predict, with its many unexpected threats and opportunities, the microcomputer plus modelling package is at the centre of significant developments in the planning methods of large and small companies alike."

"With well-designed forecasting models to help them, managers are analysing their options more thoroughly and understanding more clearly some of the broader implications of the decisions they make."

SimpliCalc and Micromodeller are good examples of micro financial planning systems. They demonstrate the two basic approaches — dynamic on-screen spreadsheet calculations (the visible calculator approach of VisiCalc, SuperCalc and many other lookalikes), and the more traditionally processed logic file of Micromodeller and Target. They also demonstrate the wide range in price, which varies between about £40 and £400.

SimpliCalc was developed by Mark Turner, group accountant for the Cronite Group, because he was unhappy with the small capacity of VisiCalc on a 32K Pet. He also wanted a similar feature for his own cassette-based Pet, and hence developed SimpliCalc mainly in Basic as a 4K program able to run on Pets of 8K or more.

This system proved so successful that it may well have been the primary cause behind Comshare's recent launch of another £40 system, PlannerCalc.

It is easy to understand the economics of a system developed privately by one individual in his own time, and it is not surprising that such a system can be sold cheaply.

PlannerCalc, however, is altogether more powerful, and the economics are consequently more confusing.

Perhaps the answer is in the history of the package itself. Much, if not all of its development was down to an American company AMSI, Advanced Management Strategies, of Atlanta, Georgia.



Per and Hal Hoolland, whose company, Hoolland Business Systems, produces standard packages for the banking industry.

user base — an attempt often made by the larger companies. But since this has been adamantly denied by Comshare executives, we may have to look elsewhere for the answer.

It is certainly hard to believe that the low price will generate sufficient turnover to recoup the revenue that its rivals obtain from their £150-£250 price bracket.

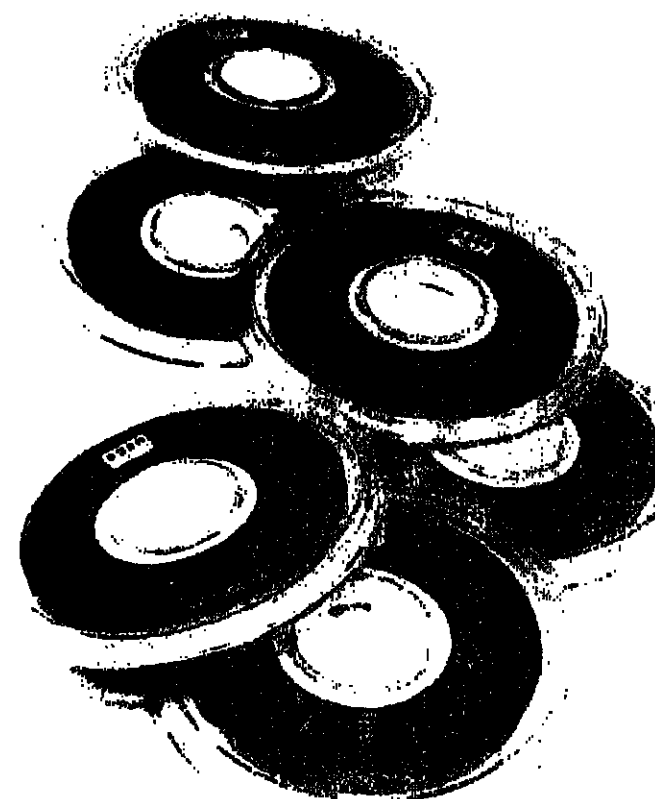
Perhaps the answer is in the history of the package itself. Much, if not all of its development was down to an American company AMSI, Advanced Management Strategies, of Atlanta, Georgia.

Comshare recently bought AMSI. In so doing, it may well have acquired a finished or almost finished product at the same time.

The development costs for the system could easily be written off as part of the cost of the company itself — in other words PlannerCalc could have come to anything at all similar, the market level is again easy to understand.

As the micro revolution goes: ■ Turn to page 22

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SOFTWARE MONTH

EVERYONE'S lusting after micro software firms these days. They are growing rapidly, and it's all very exciting. However, in the excitement the traditional independent vendors — such as MSA and Cincom — sometimes get overlooked. Next year, will most package revenues derive from micro software, or will today's established firms still be in the lead?

The first point to make is that there is widespread confusion about what is happening. People familiar with the traditional mainframe and mini software world (see Figure 1) often have little idea of what is going on in the micro world, and micro people are similarly unsure of what is happening upmarket.

SOFTSELL

Susan Ready, research associate at ICP, and compiler of the firm's well-regarded list of top computer services firms, typifies the uncertainty. When interviewed, she said "I've heard of Activision and Visicorp, but I don't have any idea of their revenues... I've never heard of Imagic".

When asked who was the biggest independent package vendor, including micro vendors, she said she couldn't imagine anyone being larger than MSA.

Software vendors playing games market set to take lead

This is interesting when you consider that Ready is an industry expert, that micro vendor Activision, selling home recreational software, will probably well exceed MSA's 1982 revenues; that both Activision and Imagic (also big in games software) will well exceed any independent mainframe vendor's revenues in 1983; and that in 1982, micro business software vendor Visicorp (see Figure 2) will probably exceed Pansophic, McCormack & Dodge and Software International.

Games software is run either on a dedicated games machine such as the Atari Video Computer System or on a general purpose micro such as the Apple II or IBM PC. Activision and Imagic are the market leaders among independent vendors.

Activision was formed in 1979. Revenues for 1980 and 1981 were approximately \$4 million and \$51 million respectively. 1982 revenues are likely to be well in excess of £110 million.

Imagic was formed last year. Its growth has been unsurpassed in the software industry. The first products were shipped on March, and 1982 revenues will be over £50 million. Revenues of well in excess of \$100 million seem certain for next year.

A glance at Figure 1 clearly shows that the larger mainframe firms are growing steadily. MSA, McCormack & Dodge, and Software International are selling general accounting software — general ledger, accounts payable, accounts receivable, payroll/personnel, etc.

The other firms are selling systems and utility software — application generators, DBMS, sort/merge and disc management packages, etc.

Industry analysis house Input confirms the picture. The firm assesses recent growth in the systems and utility marketplace at about 45% annually, and the applications market at about 54%. In 1981, Input reckons that the independent systems and utility market

was worth about \$900 million, and applications about \$1.8 billion.

Input's figures are probably the most reliable available, and its research indicates that in 1982, micro revenues will amount to about 14% of the total market for independent business packages.

Good revenues appear to be coming from a number of sources. General accounting packages, DBMS, application generators ("fourth generation" development tools), and software for specialised markets (eg, insurance, manufacturing, banking) are fueling much of the growth, as illustrated by comments from the vendors themselves.

According to John Lmley, president of MSA: "The 3081 deliveries are good for accounting package vendors... we are getting a lot of business from people who decide to buy replacement software for in-house developed applications at the same time as they replace their hardware. At the other end, the

4300 area is exploding dramatically..."

Werner Frank, executive vice-president at Informatics sees a lot of activity in vertical markets: "We are putting a lot of effort into legal, chartered accounting, and insurance packages".

Marty Goetz, senior vice-president at ADR also sees a good future for development software: "I can't see IBM being able to build integrated software because of its size. It's got development centres spread all over the world, it's an impossible task to co-ordinate them". Last word to Tom Nies, president of Cincom: "Our application generator has been selling very well... we installed over 500 in the last 18 months, worth about \$20 million".

On the other hand, certain established areas are not doing so well. MSA's Lmley sees the mini marketplace as unprofitable, because it is numerically small, and — unlike the mainframe market — not prepared to accept the high price tag.

ADR's Goetz and Informatics' Frank agreed that the days of good T/P monitor revenues are passed; CICS is making life too hard for



David Fern is a consultant in the UK and US providing marketing and planning advice to computer vendors, particularly in the area of software.

anyone except for IBM. Goetz also sees basic utility packages, such as sort/merge, having limited scope because of market saturation.

So the outlook for independent vendors over the next few years looks like this: The largest software vendors will be names such as Activision and Imagic selling home recreational software. However, this industry will have little significant impact on the business sector. The traditional vendors (see Figure 1) will retain their importance, although several micro vendors such as Visicorp, MicroSoft and MicroSoft are likely to reach ranks of the largest during 1981.

David Fern

	REVENUES		
	1980	1981	1982 (estimated)
MSA	54	70	90
Cullinane	25	42	70
Informatics	38	55	68
Applied Data Research	34	47	61
Cincom	36	44	55
Computer Assoc.	28	40	54
UCC	27	37	51
Pansophic	28	34	41
McCormack & Dodge	16	26	38
Software Int.	18	27	35

Figure 1. Top independent mainframe software vendors. All figures in £m, calendar years. MSA figures exclude micro vendors.

	REVENUES		
	1980	1981	1982 (estimated)
Visicorp	\$3m	\$20m	\$45m
MicroSoft	\$8m	\$16m	\$30m
Digital Research	\$2m	\$8m	\$22m
MicroPro	\$2m	\$8m	\$20m

Figure 2. Top independent micro software vendors (business). All figures in £m, calendar years.

City benefits from the micro boom

From page 20

pace, we can expect to find more and more micro software applications appearing. Following the general purpose packages of word processing and financial modelling, specific industry packages are now being produced.

Hal Hovland is an ex-Citibank employee (one-time vice-president within the Treasury Group and best remembered as the architect of the networked micro-based foreign exchange systems) who has now established his own software house, Hovland Business Systems.

His company produces standard packages for different functions within the various sectors of the banking industry. All of them run in real time on the IBM PC, and Apples II and III, with networked versions on the Zynar Cluster/One network. Functions already covered include foreign exchange position keeping, money market and cash-flow analysis.

Another of the new packages is the Stockbroker suite produced by Eurotec Consultants, who commented: "In most firms, despite the computerisation of some aspects of the business, account managers still tend to keep manual records of client portfolios. This is

where Stockbroker comes in — it enables account managers to do more effectively on behalf of existing clients, and provides the necessary to extend an improved service towards new customers."

The general trend in City software is clear — there is a migration from the larger centralised mainframe system to a new distributed approach with microcomputers linked by sophisticated communications. The next logical step is for the processing power to be distributed outwards still further from the local minicomputer departments to individual micro managers' desks.

The existence of companies like Hovland and Eurotec indicates that this process has already started. However, one cannot help wondering how long this process will continue. The software requirements of City software are industry specific that it is doubtful if the market is large enough to support an independent microcomputer boom.

Perhaps the future really lies with the new generation of company micros, with IBM PC and DBC personal computers linked to some company mainframes.

A UNIVERSE OF COMPUTING ON A DESKTOP...

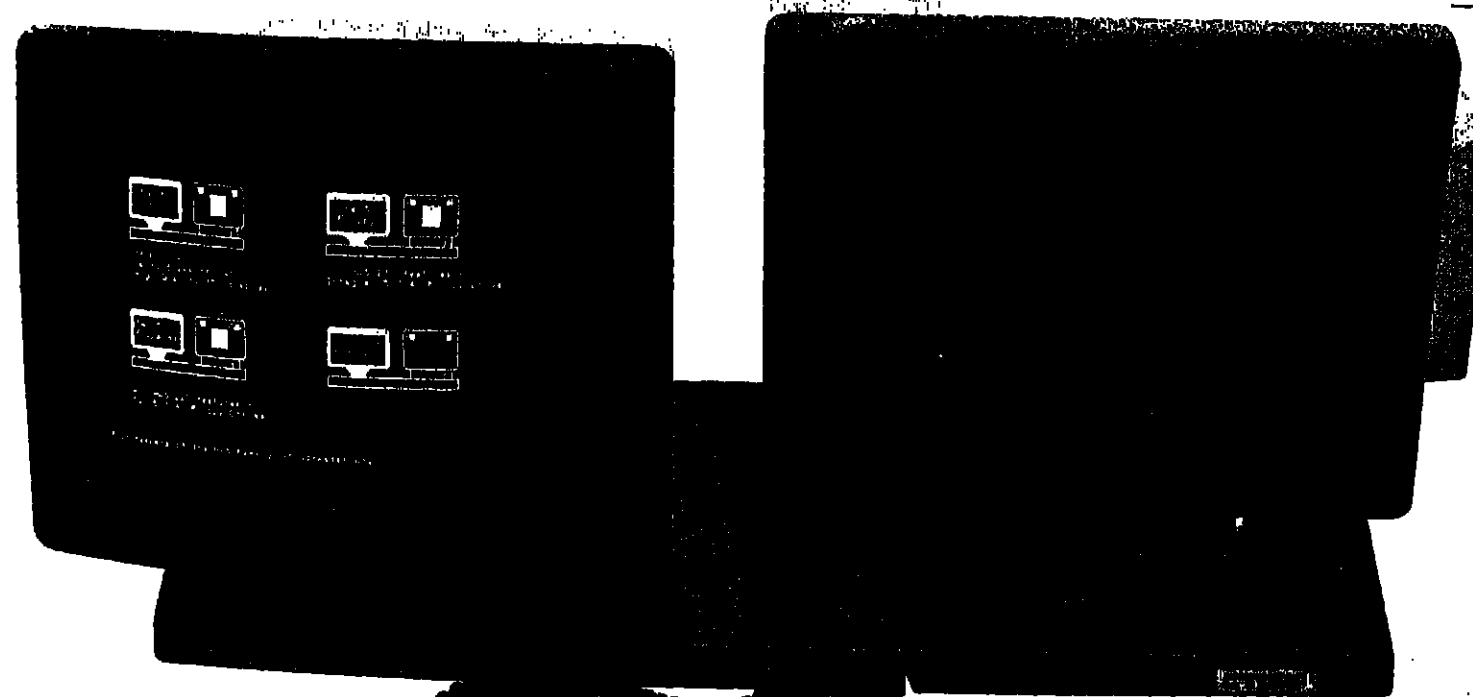
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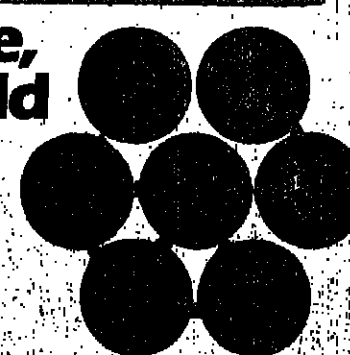
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The European Software Company Ltd. Kingswick House, Sunninghill, Berkshire SL5 7BJ - England - Tel.: 0990-23491. Telex: 848980
LONDON - DUBLIN - DUSSELDORF - MUNICH - PARIS - THE HAGUE - STOCKHOLM - MILAN - ROME

PRODUCTS



One of the new range of fireproof safes.

Solution to storage problem

THE growth in the use of electronic office equipment such as microcomputers and word processors presents many organisations with the problem of storing a mix of media formats from conventional tapes and discs to diskettes and, often, microfilm. The problem is compounded by the fact that these sensitive media store high densities of information so that minor damage can result in a major loss of data.

A new solution to the problem is offered by Datacare Business Systems which has introduced a range of fire safes with a variety of interchangeable internal fittings, designed to store any combination of currently available material in one unit.

The safes range in size from single door pedestal size to large double door units for major computer installations. Because the fittings are modular, they can be easily re-arranged or replaced to suit changes in storage requirements. All the safes are fully tested for fire resistance and all can provide two-hour protection for magnetic and film media.

Prices for the new range start at £700 to include fittings and installation.

Datacare Business Systems (CW), 1 Chapel Court, London Bridge, London SE1. Tel: 01-403 4671.

165 Mbyte drive from Kennedy

A NEW 14-inch Winchester disc drive, the Model 53160, from Kennedy, has 165 Mbyte unformatted storage - up to 37 per cent more cheaply than competitive drives, it is claimed.

The composite heads incorporate calcium-titanate slider material round thin ferrite core which reduces magnetic fringing and allows track densities of 680 tracks per inch, track-to-track spacing of 0.00147 inches and data density of 6300 bits per inch.

The new Kennedy Model 53160 fully emulates CDC 9730-160 and 9764 drives and is fully-compatible with SMD-type controllers in both hardware and software. Its five data surfaces each have 1646 tracks per surface and the average positioning time is 30 milliseconds.

The fact that the Model 53160 has 85 per cent of its parts in common with the Kennedy Model 5380 reduces spare-parts stocking requirements and improves maintenance. The average time for a repair is less than 60 minutes, with an average 10,000 hours between failures, says Kennedy.

The Kennedy Model 53160 Winchester disc drive is seven inches high, 19 inches wide and 24.75 inches deep and weighs 75 lb.

Kennedy International (CW), McGraw Hill House, Shoppenhangers Road, Maidenhead, Berks SL6 2QL. Tel: (0628) 73939.

Relying on electronic timing device

EFFICIENT management of time - the time employees are paid for - is at the heart of a new electronic personnel data recording system from Reliance Systems. The Redacomp 80 is a microprocessor network with specially designed clock-on units linked to a main console.

Functions which the Redacomp 80 is claimed to improve include payroll preparation, attendance reporting, workforce manning levels and deployment decisions and personnel record keeping. And this applies to both office and works employees, flexible or fixed working, shift and part time work - all in the one system.

Employees record their hours at the entrance as usual but using either conventional clock card procedures or a personal plastic identity card. The former is purely a cosmetic as far as the system is concerned, to retain a familiar procedure for employees reluctant to change too soon.

On either method - and one system may have clock-on terminals of both types - the employee

has a display of his or her full time-to-date information.

That information is calculated according to pre-programmed instructions. It has no practical limit on the number of different working patterns which can be set - and no limit on which individuals belong to which pattern. Day work, fixed shift, part-time, flexible rostering and so on can all be pre-programmed as can rolling shift arrangements - a common time method but seldom catered for on automatic systems.

Overtime, too, is recorded separately in one of three different categories per person depending on whether it is, say, early start, evening or weekend.

As well as being shown to the employee as a check, the data is transmitted to the central processor where it is used to produce accurate payroll input information of time worked in standard and overtime categories. The processor itself has a printout, floppy disc output or may be interfaced direct to the payroll computer via standard RS232C/V24 ports.

At this processor, too, instant information is obtainable on attendance/absence (including for what reason the absence occurs), lateness and other infringements all grouped into departments or cost centres. Provided on demand, these lists show the day's or shift's manning level long before any conventional reporting procedure from the works could have identified problem areas.

The system, therefore, gives visible works and office management information on the employee position whenever it is needed - almost as an automatic by-product.

Reliance Systems (CW), Turners Mill Lane, Wellingborough, Northants NN8 2RB. Tel: (0933 22) 5000.



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Low-cost daisywheel printer

RAPID Terminals can supply direct from stock a new low-cost daisywheel printer. Known as the Diablo Model 620, it is a read only printer designed for use with business and personal computer systems, where the quality of output is more important than the speed at which it is produced.

Typical applications include word processors, and general purpose computer systems running applications software that produces management reports or external correspondence where presentation is important.

The Model 620 employs a 96 character plastic daisy wheel that prints fully formed characters at an average print speed of 20 cphs. Maximum form width is 15.2 inches and up to five-page form sets can be printed without adjustment.

It can be interfaced to any computer or terminal with an RS232C serial I/O port, at data transmission rates of 110, 300 or 1200 baud. In addition, data can be transmitted over telephone lines or through direct cable links using the modem interface which is compatible with Bell 103A, 113A and 112A modems or their equivalents.

The printwheel, which does not require positioning or alignment, can be replaced without removing the snap-in multistroke carbon ribbon. They are available in 10, 11 and 15 pitch with proportionally spaced type characters in a choice of many type fonts. Each printwheel is encoded with language-specific information that the Model 620 automatically reads to determine correct carriage motion to hammer energy. The host processor can interrogate the printwheel to determine the type of printwheel installed and prompt the operator to change printwheels if required.

Measuring 24.5 by 17.4 by 9.2 inches and weighing less than 50lbs, the Model 620 meets UL, CSA and VDE 0804, UK and 0875 safety requirements as well as VDE 0871 and FCC class A and B electromagnetic interference requirements.

Rapid Terminals (CW), Rapid House, Denmark Street, High Wycombe, Bucks. Telephone (0494) 26271.

Five graphics models from Memorex

AN addition to its 3270 compatible terminal system, the 2079 colour display station is announced by Memorex. It is functionally interchangeable with the IBM 317 and attaches directly to IBM 3274/3276 controllers and to the 4331 display printer adapter, as well as to Memorex controllers, allowing easy addition to existing IBM networks.

Five standard models will be available giving a choice of four, seven, colours, 24 or 32 lines of graphics. The graphics models will be available early next year, the other models will be available in the UK from December.

The 2079 offers many "user friendly" features. Its recessed, non-glare screen, for example, has a Sunflex filter to reduce operator eye fatigue. The monitor also has an operator comfort and for adaptation to various operating environments. To reduce screen-burn the image dimming automatically if there is no activity for 20 minutes.

The range of colours displayed on a CRT monitor is produced by combining or "converging" three colours. On the 2079, three colours are pre-converged in the factory, and it is no longer necessary for operators to perform time-consuming "convergence" adjustments from the keyboard.

Memorex UK (CW), Memorex House, Church Street, Middlesbrough. Tel: (01642) 51111.

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Reliance Systems (CW), Turners Mill Lane, Wellingborough, Northants NN8 2RB. Tel: (0933 22) 5000.

PRODUCTS

Word processors add 15 Mbytes storage

ARCHIVES has extended the data storage range of its word processing systems.

The addition of the Archive III range with its stepped range of three Winchester hard disc systems offers the prospect of on-line storage capacities for text and data in excess of 15 Mbytes. At the same time the range of command facilities built into the standard keyboard now offers improved assimilation and utilisation of the WordStar system of word processing, says Archives.

For the more experienced user looking for a system with a wider range of facilities, Archives has added Final, a microcomputer-based financial planning system, and dBase II, a relational database system, to its preferred software lists.

The already well established floppy diskette-based Archive I and II and the new Winchester-based Archive III provide the first time user with a system which is both user friendly and has the facility for logical expansion as this experience and requirements grow, says the company.

Archive is a true S-100 bus system, and all models come complete with the industry standard CP/M operating system to provide support for most of the more popular and widely used development and application software programs.

Archives' preferred software list includes some 30 proven applications and general purpose development systems. The detachable Archive keyboard with its dedicated WordStar keyset is specifically designed to provide the new and inexperienced user with early ease and facility with the WordStar System command instructions. The latter are often regarded as the main obstacle to the effective use of WordStar by many operators.

The new Archives keyset offers labelled single touch commands for the twenty principal functions. These same commands normally

require up to three keystrokes using a conventional keyboard. Archives systems can be supplied with several levels of integrated financial modelling and information processing systems. These cover all levels of complexity from simple name and address lists to more complex and integrated information systems.

All the associated software has been selected as Wordstar compatible supporting the integrated word and text processing facilities increasingly required as the competence and experience of the user grows.

The associated software can be supplied pre-configured and ready for immediate use. It has been carefully selected and structured to offer a number of levels of entry for the new user. The software is designed to provide an established development library for more advanced users.

Archives UK (CW), PO Box 26, Croft-on-Tees, Darlington, Co Durham. Tel: 0325 721368.

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Soft contact head cuts out damage to disc

A HALF-SIZE disc drive featuring a soft contact head has been introduced by Mitsubishi.

The Model M2896 half-sized flexible disc drive measures 2.25in high x 8.55in wide x 12.40in deep and features a dual gimbal head assembly for improved performance and media wear.

The M2896 requires half the space of conventional double-sided, double-density eight-inch disc drives, says the company, yet maintains the same 1.6-Mbyte storage capacity as the full-sized M2894 and is fully compatible and interchangeable with industry standards like Shugart's SA850R (-63 interface). The M2896 is also IBM information and media compatible. Electronic functions and logic controls are LSI-microprocessor based for signal and data integrity.

Unique to the flexible disc industry, two all-ferrite MnZn heads in a special designed gimbal mounted assembly, enable soft, stable contact with media regardless of disc surface fluctuations, thus eliminating, says Mitsubishi, the possibility of media damage. The head features program seeking accuracy, and Mitsubishi's Softouch high-speed, soft head landing.

Front panel controls include a door lock for prevention of accidental opening and an LED indicator programmable to user signal requirements.

Mitsubishi Electronics America Inc (CW), Computer Peripherals Division, 2200 W. Artesia Blvd, Compton, CA 92220. Tel: (213) 979-6055.

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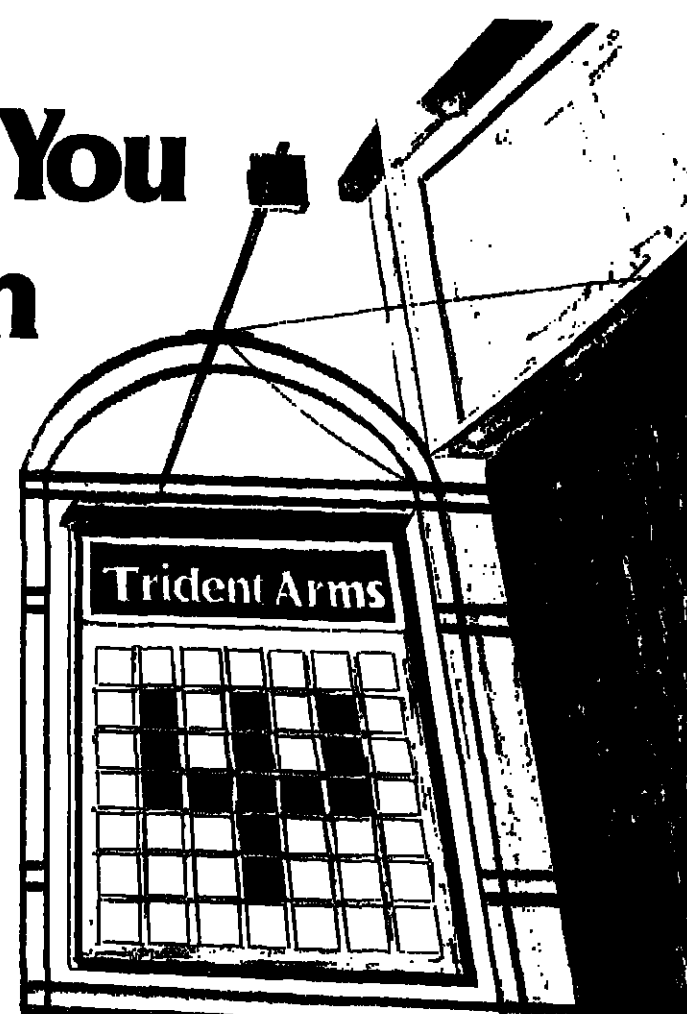
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Kramer Westfield

CONTRACTS

IBM PL1 IMS DB/DC

LONDON PROGRAMMER/ANALYSTS

VAX DIBOL (VMS)

LONDON ANALYST/PROGRAMMER

IBM VM ASSEMBLER

LONDON SYSTEMS PROGRAMMER

IBM COBOL IMS DB/DC

LONDON ANALYST/PROGRAMMER

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| * COBOL | IDMS, SHADOW | Programmer |
| * COBOL | ADABAS | Programmer |
| * PL/1 | IMS DB/DC | Programmer |
| * PL/1 | ADABAS, CICS | Various Levels |
| * PL/1 | ADABAS, NATURAL | Senior Programmer |

These are all real requirements with start times over the next eight weeks. Contact us NOW regardless of availability.

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Link Associates Limited
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TELECOMMS CITY

A major bank require a project leader and programmers with a sound data communications background in some of the following areas:
- DEC PDP 11 using RSX 11
- X25 - Swift
- Telex

The company offer a very attractive salary and benefits package, including reduced rate mortgages and loans. TM44/1

COMMUNICATIONS DORSET

A leading communications company is looking for senior and principal software engineers with a good real time background to work on the very latest developments in communications technology. Applicants should be of degree level, with a minimum of 2-4 years' experience in communications controls or data communications. Generous salary and an exceptional relocation package. TM44/2

DEFENCE ESSEX

Our client is involved in the development of defence communications systems. They currently wish to employ an engineer with a background in radio communications. Experience in defence strategic communications, including message handling, would be a great advantage. TM44/3

COMMUNICATIONS HERTFORDSHIRE

Our client is at the forefront of microprocessor-based communications systems. To expand their existing team they have a requirement for engineers with a minimum of three years' real time system development experience, using high level languages and IBM, PDP 11, VAX or Micros. TM44/4

GRAPHICS WEST COUNTRY

A London-based systems house is currently seeking scientific programmers to work on site in the West Country for a minimum of two years. Candidates should have experience of Fortran on VAX machines and an interest in graphics-type applications. In addition, programmers with PDP-11, Fortran, Basic and Pascal, are required for engineering systems. DLM44/5

SYSTEMS SOFTWARE OXFORDSHIRE

Our client has an established software factory where existing developments in systems software require additional personnel from Senior Programmers to Project Managers. Candidates should have a strong Computer Science background, plus experience in one or more of Compilers, Utilities and/or Software Products. DLM44/6

BANKING COMMUNICATIONS CITY

An international organisation specialising in banking networks is interested in recruiting additional support programmers. Candidates should have experience of banking applications, a technical background, and experience in programming in BASIC. Based on PDP 11, successful candidates will be involved pre- and post-sales support on customer sites. DLM44/7

TYPESETTING/GRAPHICS BERKSHIRE

A very successful company (recently gone public) specialising in Typesetting and Graphics Terminals, wish to expand their programming development unit. Candidates should have a degree plus two years' software/scientific programming experience on minis or micros in any modern language. DLM44/8

COMMAND & CONTROL LONDON

One of the largest International Software houses with their headquarters in London have a requirement for Software Designers with a minimum of 1 year's experience in Real Time Systems Design. Candidates should have a degree plus experience in one or more of the following:
- Defence Systems
- Mascot
- PDP 11
- CORAL
- VAX
- INTEL 8086 DLM44/9

HARDWARE DESIGN ENGINEERS BEDFORDSHIRE

A company committed to state-of-the-art satellite communications systems require additional engineers for development of digital signal processing systems. Candidates must have a degree plus three years' experience in one of the following: 8086 hardware design, digital logic design, digital communication equipment and interface design. DLM44/10

HARDWARE ENGINEERS ESSEX

Our client is involved in a wide range of hardware development using state-of-the-art microprocessors. Candidates should have experience in one or more of the following: data handling hardware, IF/VHF circuits, complex microwave circuits, Radar transmitter design, and analogue and digital control systems. DLM44/11

HARDWARE ENGINEERS BERKSHIRE

A number of openings exist for Senior and Principal Engineers to carry out design and development in the following areas: analogue and digital subsystems, speech coding, digital filtering, speech recognition, and telephone exchanges. Candidates must have a degree, plus at least two years' practical experience. DLM44/12

TECHNICAL WRITERS SCANDINAVIA

Our client, a growing computer manufacturer, is seeking candidates for technical author/co-ordinator positions. Candidates should have a technical background including technical writing and must be able to communicate in English both written and verbal. The work involves micro processors, data communications, and local network. DLM44/13

SOFTWARE ENGINEERS SWITZERLAND

A major telecomms company seek additional programmers to work on state-of-the-art switching systems. Candidates should have a degree, be in their twenties and have experience in some of the following: real-time multi micro processor operating systems, comms. devices, HDLC, high level languages, e.g. C, Pascal, SPC switching systems, call handling experience, CCITT recommendations, System 12/40 and System X. DLM44/14

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Datamatics, Freeport, Surbiton, Surrey KT8 9BR

SYSTEMS & PROGRAMMING

SYSTEMS PROGRAMMER N.E. SURREY IBM MVS £12,000 p.a.

We are acting for a major engineering concern which, as part of further Data Processing investment, intends to introduce an advanced international network across Europe, with US links. Enabling a further increase in the highly efficient and profitable activities of the company.

The hardware consists of an IBM mainframe running MVS, SP1.1 with distributed processing on Hewlett Packards and word processing on Wang/V5. The software includes TS, ACF/VTAM and NCP, ACF2, CICS. Database applications exist using IDMS, Voice, DATA and TEXT technologies will soon be introduced to provide a corporate office information system.

The basic requirement is for an MVS Systems Programmer with a minimum of three years' software experience. Experience of a TP Network using some of the above software would be an advantage.

The company has kept up with developments in Computer Technology and intends to continue doing so at their modern European Headquarters, situated in N.E. Surrey. For the right person they are prepared to pay up to £12,000 plus additional payments for extra hours worked. Ref. J.6641

PROGRAMMER LONDON IBM SYSTEM 34 RPG 2 £10,000

Our client, an international organisation involved in the manufacture of pharmaceutical and cosmetic products, seeks to recruit a Programmer. This impressive company have recently moved to NEW OFFICES in the West End of London. They presently retain IBM System 34 machines using RPG 2 and MAAPICS. We have been retained to engage an individual with a minimum of 2 years' RPG 2 experience with a good knowledge of IBM System 34. This position is to work in a small data processing department. Duties include assisting the Data Processing Manager in the development of major applications. This position offers excellent scope for advancement with prospects of getting involved with analysis. A negotiable salary of up to £10,000 is offered according to age and experience. Ref. S.6763

PROGRAMMERS IBM COBOL OR ASSEMBLER CROYDON To £11,500

We have currently been retained by this well known company with offices in Croydon to recruit several programmers. They are currently expanding and need to supplement their large development group. They retain IBM 3031 hardware running under MVS using Cobol, Assembler, CICS and DL/I. Applicants require a minimum of eighteen months' IBM COBOL or Assembler preferably under OS/MVS but good DOS candidates would be considered. Experience of CICS or DL/I would be an advantage but TRAINING offered. More senior candidates with a minimum of 2 years will be involved in setting up database for Real Time Systems. These positions offer superb opportunity for programmers looking to make a career move to be involved in a progressive forward looking company. This organisation places great emphasis on TRAINING and career development. The company offers excellent working conditions with regular reviews and generous fringe benefits. Ref. S.6749

COBOL PROGRAMMER ESSEX BANKING To £8,000 p.a.

This well-established merchant bank, located in a pleasant and accessible part of ESSEX, have engaged our services to recruit a COBOL Programmer. Candidates should be keen to become involved in all types of financial applications and the successful person would be expected to progress towards a more technical role.

Our client retains Univac 1100 series mainframe machinery, and they also have on-line facilities. Prospective applicants should be able to show from 18 months' solid programming experience and possess a good educational background. Exposure to Univac systems would be a definite advantage although this is by no means essential as training will be given. MORTGAGE assistance is among the many benefits available. Ref. J.6742

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A minimum of 3 years experience plus a sound knowledge of VME/B and ICL COBOL is essential. A knowledge of either IDMS, TPMS and/or structured programming would be an added advantage.

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The EIB finances projects in the ten Member Countries of the EEC and in over seventy other countries in the Mediterranean, Africa, the Caribbean and the Pacific. The Bank's staff are recruited from Member Countries and work in multinational teams.

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TWO DATA PROCESSING SPECIALISTS: ONE INFORMATION CENTRE MANAGER AND AN ASSISTANT

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 - document composition facility;
 - STAIRS;
- creation of files for accessing via APLDI;
- APL applications development;
- maintenance of existing applications (either in APL, or in COBOL, CICS, DL1) related to information centre operations.

ENVIRONMENT: IBM 4341/2 8 Mb working under VM/CMS/DOS/VSE.

Experience required: □ CMS, APL, COBOL, CICS, DL1, APLDI, ADPS, DCF, STAIRS; □ 5 to 10 years professional data processing experience (at project leader level, preferably with data management and personal computing experience); □ a good knowledge of French and English is essential.

A HEAD OF COMPUTER ROOM OPERATIONS

responsible for the operations team on an IBM 4341/2 8 Mb system working under VM/CMS/DOS/VSE/SNA.

- planning and control of production work;
- monitoring security procedures; □ interface with systems programming team;
- user interface; □ monitoring a 100-terminal network.

Experience required: VM, CMS (exec. procedures), DOS/VSE (JCL). Programming experience an asset. Knowledge of transmission equipment and SNA would be an advantage. 3 to 5 years experience in supervising an operations team and managing a computer centre. A good knowledge of French and English is essential.

The monthly starting salary for a married person will, depending on qualifications, be within the bracket of: □ 105,000 to 120,000 Belgian francs for the Information Centre Manager; □ 92,000 to 105,000 Belgian francs for the Assistant and □ 83,000 to 97,000 Belgian francs for the Head of Computer Room Operations, net of tax and social security payments, in addition to which there are allowances for any dependent children. The Bank also offers a comprehensive welfare scheme, including its own pension and medical insurance, education allowances, etc.

Candidates, who must be nationals of EEC Member Countries, are invited to submit their applications, accompanied by a detailed curriculum vitae and photograph, to:

EUROPEAN INVESTMENT BANK,
Recruitment and Careers Division,
100, Boulevard Konrad Adenauer,
L-2650 LUXEMBOURG.

Applications will be treated in strictest confidence.



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These are key positions within one of Europe's leading specialist centres dedicated to computer aided design. The Centre uses a variety of hardware, including several PRIME systems (3 of which are networked to provide a basic development service), COMPUTER AUTOMATION, PERQ, APOLLO, and a very large number of terminals, both alphanumeric and graphics based.

SYSTEMS & OPERATIONS MANAGER

To provide a stable and efficient service to users covering both operations and technical support functions.

Applicants must have a good track record of managing operations involving large terminal networks together with experience of hardware selection, purchase and installation.

Good communication and organising skills are essential.

OPERATIONS TEAM LEADER

To lead and motivate the activities of a team of 2 operators, ensuring effective implementation of operating standards and procedures plus provision of full documentation. Will also be required to liaise on a day-to-day basis with various engineering support organisations to ensure equipment availability.

For the right men or women we're offering competitive salaries plus the usual range of benefits.

If you're interested in a career in the expanding area of computer aided design, please send a detailed cv to Mr. J. McKelvey, Computer Aided Design Centre, Madingley Road, Cambridge, CB3 0HB.



Computer Aided Design Centre

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Working in a small and stimulating team with the backing of a multi-national company, your contribution is vital to the success of the product in the market. To the person who takes on this considerable challenge we're prepared to offer an excellent salary and benefits package, including a company car. If this is you, telephone or write to John Faith, Personnel Manager, ITT Consumer Products (UK) Ltd., Chester Hall Lane, Basildon, Essex. Tel: 0268 3040.



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THAMES POLYTECHNIC School of Mathematics, Statistics and Computing Microcomputers and Operational Research SERC RESEARCHER

Graduate in Operational Research, Mathematics or Computer Science required to develop advanced procedures of stock buying for westward based upon microcomputers. Close liaison with a local company having essential part of this SERC funded project. In appropriate cases payment for M.Phil./Ph.D. will be encouraged. Salary: £7,000 per annum inclusive. Further particulars and application form from the Staffing Office, Thames Polytechnic, Wellington Street, London SE18 6PP, to be received by November, 1982.

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A few of our exhibits . . .

PROJECT LEADER (Watford) £11,500

Progressive computer equipment manufacturer urgently needs a competent all-rounder, as No 2 to the DPM, to undertake all aspects of their major systems development programme in the Financial and Field Service application areas. Current systems are running on ICL System 10, IBM Series 1 and micro, with ICL System 25 planned for the near future. Essential requirements are two years programming experience and four years analysis/design, ideally including online projects in a related field.

SENIOR PROGRAMMER/ANALYST (West Middlesex) to £10,000

An exciting career possibility for a programmer/analyst who can demonstrate technical competence and professional commitment. This large retail organisation needs you to take projects from the user feasibility stage through design and programming to implementation. A super environment and well conceived development plans will give you the job satisfaction and security which is now so important. Essential requirements are IBM OS/VS1 COBOL and a willingness to roll up your sleeves when necessary.

TECHNICAL PROGRAMMER & ANALYSTS (Berkshire) to £11,000

Hugely successful UK group needs candidates with at least three years post graduate experience of software engineering, ideally intermixed with CORAL, FORTRAN or ASSEMBLER languages. PDP 11 under RSX11M is used for Comm. work but micro, mini and mainframes are also available for engineers' use. The work predominantly involves military projects, usually in a real-time environment; successful applicants can expect involvement in a large number of interesting and varied projects.

SYSTEMS ANALYST (MICROS) (Nottingham) c£11,000

Consolidate your micro experience with this successful and highly respected new software house which supplies a range of general commercial and financial applications. You must enjoy talking to clients and potential customers and be confident of taking projects successfully from specification through to implementation and initial customer support. Previous involvement with PASCAL and/or LANS will be especially useful.

ANALYST/PROGRAMMERS (Berks) c£10,000

Super online development opportunities with a major food processing company committed to a complete DP rationalisation program. COBOL skills gained in a commercial or financial environment using mini hardware and ideally combined with analysis/design experience will help you to key positions in a cohesive and friendly team.

TECHNICAL PROGRAMMERS (Bracknell area) to £9,500

This small but fast expanding systems and software group operating in the defence, scientific and industrial product areas have several vacancies for scientific programmers wishing to escape the "back-room boffin" syndrome. Customer contact will be an integral part of most projects, your initial task being a real-time simulations system using PDP 11/34s front-ending VAX 11/780 processors. You will need at least two years relevant experience including RSX 11M and MACRO 11.

SALES SUPPORT CONSULTANT c£10,000 + Car (West of London)

Interesting role supporting clients of a progressive micro and mini-based systems house. Duties will include troubleshooting, ongoing systems advice/enhancement and user training. Systems and programming experience would be advantageous, but more important will be general business experience combined with an appreciation of the computer market place, a sound knowledge of basic accounting procedures and confident communicative skills. Some European travel may be involved, so a foreign language would be useful.

PRINCIPAL SOFTWARE ENGINEER (Berkshire) £12,000

A rare chance to join the industry leaders in the design of advanced computer graphics and imaging systems. This is a key role requiring sound technical and commercial judgement with proven team leading abilities. Suitable candidates will have had a minimum of five years scientific/engineering programming experience, preferably related to graphics or imaging, on minicomputers. Hardware in use includes PDP/LSI and INTEL 8086, so experience of RT11, RSX11M, FORTRAN, MACRO 11, PLM and ASM86 would be relevant.

MINI/MACRO SOFTWARE SALES £25,000 + Car (Home Counties)

This is an outstanding opportunity to join one of the foremost names in bespoke off-the-shelf software packages, a company which is really going places. If you've had at least three years' success in selling proven application software to software houses, commerce and industry, you will enjoy the total support and success our client can offer you. Excellent package includes high level basic, commission (+ guarantee), company car and top fringe benefits.

PRODUCT SUPPORT PROGRAMMER c£8,000 (West Middlesex)

Unusual opportunity with a major hardware manufacturer which would suit an ambitious graduate, with at least one year's experience of programming in a high level language, who wishes to get "closer to the machine" and become involved in Operating Systems, Compilers and Communications. Initial training and in-house work will lead to increasing user contact in the field.

COBOL PROGRAMMERS (High Wycombe area) c£8,500

If you live in Bucks/Berks, have a desire to cut down the boring commuting and can demonstrate sound COBOL programming ability we can almost certainly offer you early interviews with local clients. Roles and applications vary, but all can provide interesting development work with clearly defined career paths.

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DEC LSI/11-23 ASSEMBLER &	SEN PROGS	BERKS
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Commercial - H Counties - Midlands - Manchester	
ICL/VMEB or K/IMS	to £11K
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SENIOR PROGRAMMER Sussex to ILK

Our client, part of a large organisation within the financial and insurance marketplace, is seeking to recruit a Senior Programmer with at least 3-4 years experience of Technical Systems Design and COBOL Programming.

The salary, which shares equality with the organisation's Systems Analysts grades reflects the importance and seniority of this programming role where technical counselling and leadership of other programmers is vital.

Expertise in Technical Systems Design, techniques of COBOL programming, job control and a thorough understanding of Dump reading are essential elements of the position. Preference will be given to candidates with either experience of CICS or knowledge of Database concepts although training will be given where necessary.

The current configuration includes an IBM 4341-2 with 8 megabytes of real storage running under VM, OS/VS1 and CMS. It is planned to enhance the installation further with the introduction of larger IBM computers running under OS/MVS.

This is a unique opportunity for career advancement within a growing and secure financial organisation. Our client is able to offer generous fringe benefits including non-contributory pension and life cover, subsidised restaurant, flexible working system and relocation assistance.

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● POSITIONS

The company continues to grow rapidly and therefore requires additional senior engineers in Central London, Kent and Southern Home Counties. The Senior Engineer position involves high technology maintenance to component successful applicants will have the opportunity to travel within Europe and the USA.

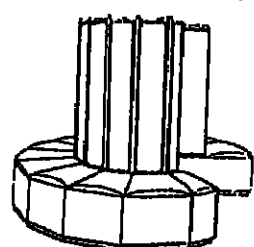
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CRAY
RESEARCH (UK) LTD



(1820)

Help support our ICL software in Johannesburgand make a sound investment for the future

Our Client, a highly respected company, with predominant interests in the mining of precious metals, is seeking to recruit suitably experienced ICL Software Personnel to work within their Johannesburg Head Office.

As a company with vast resources, they are in an excellent position to offer a rewarding return on an investment of time, experience, and commitment, and therefore a worthwhile opportunity for personal advancement can be realised.

VME Software Support R21600+ benefits

With good experience within ICL 2900 VME environments coupled with at least a 2 year exposure to COBOL and possibly FORTRAN. Duties will encompass support of operating system, and superstructure software through hands on involvement and the supervision of a small VME team. Consequently skills in project planning and team leadership are highly desirable, as are telecomms and database experience.



TP/Database Software Support R21600+ benefits

To provide an efficient support interface between applications development and technical personnel. A knowledge of COBOL and preferably FORTRAN is required to enhance a sound background in TP and Database technology (preferably IDMS and RAPPORT).

These positions hold an exciting challenge for career minded individuals and an excellent package of salary and benefits (to include bonus, non-contributory pension and medical aid) will be available. Full assistance with relocation to South Africa will be offered including 3 months initial accommodation in furnished flat, and every effort made to ensure a happy landing at Jan Smuts Airport.

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To find out more contact **Graham Utton** from our Advisors, **SCR International** on 021-236 3781 (24 hours answering service) or Cannock 3782 (evenings and weekends)

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Our client wishes to recruit a VAX operator with nine months + exposure to VMS. They run a small operations department working on a three shift basis to 2 am. New VAX hardware is soon to be installed and there will be plenty of scope for the right applicant.

Ref: KS816/CW

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Ref: AM813/CW

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In return for your sound OS VS1 operations background, knowledge of DOS and PDPI our client, a Financial Organisation can offer you excellent opportunities. Benefits include subsidised mortgage, non-contributory pension scheme, BUPA.

Ref: LR810/CW

Finance company seek operator with minimum one year's min experience. Two shift system.

Ref: LR814/CW

Contact Lynne on 01-636 0411 regarding the above position.

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Ref: MM836/743/CW

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(1484)

PROGS & AN/PROGS HP 3000

to £10,000

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International Company based in C. London requires analyst/programmers to work in sales support areas. A solid DP background is essential together with a good academic record. Experience in the financial sector would be useful as would knowledge of INTEL equipment.

PROGRAMMER/ANALYST

£9,000

Large ICL user based in North Surrey is seeking to recruit several programmer/analysts to complement its existing VME development teams. Applicants should have a minimum of 18 months' VME/COBOL and should be familiar with either IDMS database or on-line programming techniques. Usual large company benefits apply.

PROGRAMMER HONEYWELL

£10,000 + Mort.

Prestigious company in C. London requires a programmer with a minimum of 18 months' Honeywell Cobol experience. Applicants should be familiar with commercial applications and have a working knowledge of TDS on-line techniques. An excellent salary package is offered together with a preferential mortgage and other large company benefits.

PROGRAMMER RPG SYS 38 TRAINING

£8,500+

North Surrey based company has identified a requirement for an RPG programmer. They have been a SYS 38 user for a year and are prepared to give the necessary training to existing RPG programmers. The minimum requirement is 1 1/2 years' RPG preferably from a SYS 34 environment. As well as SYS 38 RPG III training the client encourages early exposure to systems.

ANALYST/PROGRAMMER

£10,000

Engineering company located in C. London requires an analyst/programmer with a strong commercial COBOL background. The position is based in the management services team of five people. The minimum requirement is two years' COBOL with a good understanding of accounting systems. There is a lot of user liaison and therefore applicants should have good communication skills.

PROGRAMMER BASIC/RSTSE

c £8,000

A systems house specialising in DEC systems has a requirement for two BASIC + programmers. Applicants should have around 18 months' BASIC gained in any commercial environment. This is an ideal opportunity for programmers to move on to VAX systems as the client is installing several VAX machines.

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Well known company in London requires a database programmer to supplement their established team. A thorough knowledge of DMS 1100 and COBOL is required as the position carries the status of senior programmer. Although there are expansion plans a degree of maintenance is expected. Applicants should have a professional outlook and attitude.

PROGRAMMER CTL COBOL, CORAL

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International bank in the City require an experienced programmer for their team. The prime requirement for the position is a minimum of one year's programming on CTL hardware together with two years' experience of financial systems and packages. Usual banking benefits apply for this position.

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PROJECT MANAGER to £15K + CAR

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ANALYST/PROGRAMMER to £13K

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For more details of these exciting opportunities and immediate interview, please contact Nick Clements on 01-734 7394, or on 01-546 7813, in the evenings or at weekends.

(1812)

Systems Analyst c.£13,000

Senior Programmers c.£11,000

Programmers c.£9,000

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Our client is the U.K. Member of a successful international insurance group. Following a recent strategy survey, they are making a significant investment in hardware and people to develop state-of-the-art systems to see them through the next decade. Hardware is IBM, 4300 DOS/VSE CICS/DLI together with S/23 and Displaywriter. They now need the following additional people:

Systems Analyst: to lead the technical development of new systems. Candidates should have a minimum of five years' DP experience including at least three years' analysis experience. They should have led and implemented at least one major interactive project and have experience of the insurance and commercial business world. A knowledge of database would be an asset. Exceptionally good communication skills are needed in order to work effectively with and win the confidence of senior user management as well as creativity and flair to exploit technology to the advantage of the business. Preferred age range is over 25.

Senior Programmers: to lead small programming teams working on the design and development of various insurance systems. Candidates should have a minimum of 4 years' programming experience including 2 years' leading successful projects. Experience of structured program design is required in a CICS/DLI/COBOL environment. A knowledge of VSAM and DOS/VSE would be an advantage. In personal terms, candidates should be capable of independent working and strong enough to ensure that technical considerations are not overruled in the finished systems.

COBOL Programmers: with not less than three years' experience, including working in a DOS/VSE CICS/DLI environment.

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Technical background required is that of 3-4 years' PDP11 experience using RSX11
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LONDON. £7,500-£8,000

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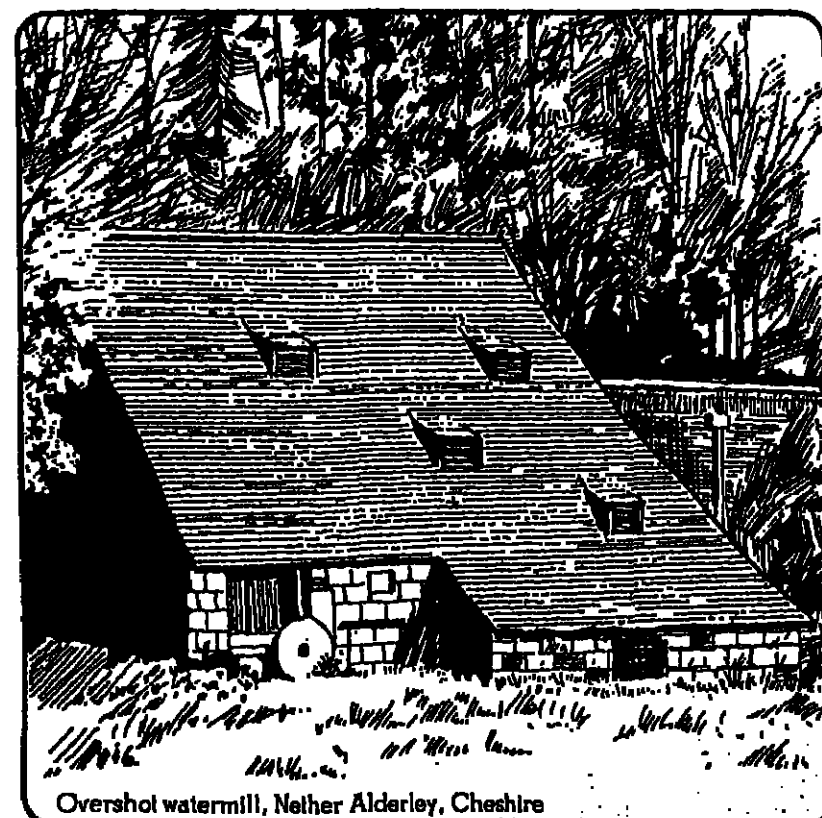
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We are interviewing now, so that short-listed candidates can be finally interviewed by our client, here in UK, in January 1983.

For further details please telephone: Mark Clifford or Noeleen Holt on (0462) 57141 during office hours or (0438) 727652 evenings and weekends.

Alternatively forward your résumé to:

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upon receipt of an SAE and should be returned not later than Friday, November 19, 1982. (1450)

DURHAM UNIVERSITY LIBRARY

SYSTEMS LIBRARIAN

Following the successful implementation of the OASIS online circulation package in the Main and Science Libraries and in-house catalogues produced based on OASIS supplied records in the Education Library, we are now looking for an experienced Systems Librarian to help us maintain these and other developments and plan progress towards integrated systems for a new library building to be occupied in 1984.

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Further particulars may be obtained from the University Librarian, Durham University Library, Leazes Road, Durham DH1 1TA, to whom applications (one copy only) should be sent to: Director of Staffing, 11th November 1982.

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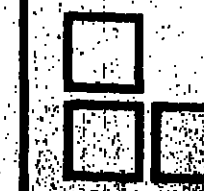
We are looking for a person with good academic qualifications (preferably a degree) with an aptitude to develop programming and analysis skills. Experience in this area would be an advantage. The person appointed will join a small team which provides computing services to all departments of the company.

The systems currently in operation are order processing, subscriptions, sales ledger and management reporting. Bought Ledger, nominal ledger, cost ledger and royalty systems are being developed.

The existing systems run on a large DEC PDP 11/70 and a second machine has been recently acquired to accommodate the new systems. The programming language used is a sophisticated combination of COBOL and BASIC.

The successful applicant will be expected to contribute to the development of new systems and to provide support for existing systems. Courses will be provided for the candidate who shows suitable professional skills but who does not have the necessary knowledge of DEC products.

Please write giving full details of qualifications and experience to: Linda Stammers, Personnel Officer, Butterworth & Co. (Publishers) Ltd., Borough Green, Sevenoaks, Kent.



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SALES BIT

Quality of Management — 29

Do you know all the right questions?

OVER the past weeks, I have written about the three most important areas of basic sales documentation — client records, call-plans and call-reports. There are many other forms of written information that many salespeople have to handle — sales proposals, competitive activity reports, complaint forms and credit dockets, for instance.

Of all these, the ones I have found most valuable as a sales manager are checklists and questionnaires for collecting information related to a specific selling opportunity.

Many kinds of industrial and commercial selling involve the production of a sales proposal or quotation, which in turn demands the instigation of a detailed survey in order to collect all relevant information so that the best available solution can be offered to the prospective client.

While the information one collects in every such exercise is virtually unique, by far the greater proportion of questions the salesperson needs to ask come up time and again. Yet, despite this repetition, salespeople often approach the survey on a one-off, "play it by ear" basis. This means that the chances of getting all the information needed is a direct function of experience, memory and the investment of a considerable amount of time.

The use of standard checklists within the sales survey is an excellent method of increasing the efficiency of collecting essential information, and for aiding the less experienced salespeople in the context of an unfamiliar application or industry.

Let's take for example the sale of a manual accounting system for a sales ledger application. Most of the questions that need to be asked are obvious to someone who has sold a sales ledger system before.

1. How many sales ledger accounts do you have?

2. How many new accounts have you opened over the past year?

I can assure you that it won't be long before you are wondering how you ever managed without one. After all, it also makes an excellent document for the prospect to sign just in case there is any subsequent argument about the task that was undertaken.

Alan Williams

COURSES

Microcal has launched an interactive CP/M training package called Hands-on CP/M Operating. It is designed for the inexperienced user and is suitable to anyone requiring microcomputer experience. It covers topics such as an introduction to computer hardware and information processing concepts. For the part of the course that deals with CP/M, the screen is split into two halves with a CP/M simulation taking place in the top half and a tutorial guidance running in parallel in the lower half. The information that is collected on the students' performance can be analysed by an additional utility program. It is available for use on mid-range CP/M and CP/M-86 machines at a cost of £70+VAT. Details from Jon Sheering on 01753 576009.

PUZZLE ANSWER

2 8 7 5
6 5 1 3
2 3 8
2 3 3
2 3 3
2 3 3
2 3 3
2 3 3

0 4 2 1

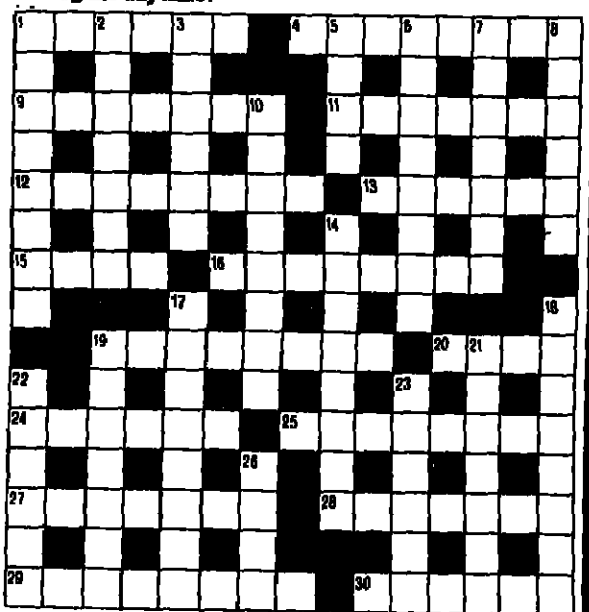
The letters are interchangeable.

CROSSWORD

Prize Crossword No 34

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS, by first post Friday, November 12. Please use a ballpoint to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name (Miss, Mrs, Ms, Mr)

Address

Telephone

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed Date

ACROSS

- 1 Go beyond the defile to the borders of Burgundy (4,2)
- 4 Is ancient, corroded internally, and set apart (8)
- 9 It controls flow of liquid in overturned vessels by a gentle knock (4,3)
- 11 Rest disturbed after high-bell and sea-food (7)
- 12 Demure, having to wash back very early (8)
- 13 Make short visit to everyone in course of study (4,2)
- 15 Bouts of horseplay causing scraps (4)
- 16 Allowed one back into technical college in courteous manner (8)
- 19,20 Leave the inflamed swelling to begin to cool (2,3,3,4)
- 24,25 Open up play-pen and leave team-mates in the lurch? (3,3,4,4)
- 27 Part of Germany where there's bachelor song around five (7)
- 28 His, blended with ours, is rather acid in taste (7)
- 29 Concerned with theologian in outhouse getting torn to pieces (8)
- 30 A children's nurse's pineapple (6)

DOWN

- 1 Dad's game permit (8)
- 2 Attending to furnace all right, though in sharp pain (7)
- 3,5 Gambler's spirit reveals nobler impulses (6,4)
- 6 Wasn't truthful about awful child being poised (8)
- 7 One has to agree completely (7)
- 8 Courageous sweetheart left out (6)
- 10 Quiet periods of unemployment for deciding games (4,4)
- 14 A decade that is captivated by Varsity boat-races (8)
- 17 Worried the pair of them before start of day (8)
- 18 Sovereign, surrounded by birds, winces (8)
- 19 Recover from having reverend with OT, for instance, turning up (3,4)
- 21 Love getting a kiss on one with an undergraduate of Balliol? (7)
- 22 Frightful bogies displaying round bodies (6)
- 23,26 Cost of double journey with true, well-cooked, navy food (6,4)

RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.
2. The competition is open to all readers of Computer Weekly with the exception of the staff of IPC Business Press Ltd, any printers employed by them or the near relatives of any such staff.
3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.
4. Winners will receive their prizes during the month following the competition.
5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

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- real-time control systems
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- manufacturing information systems (eg COPICS, MAAPICS)
- data communications
- high reliability and multicomputer systems
- technical microprocessor applications

If you have relevant experience, ability and enthusiasm please write to or telephone Rebecca Davies (quoting ref IG09) at Logica Limited, 64 Newman Street, London W1A 4SE. telephone 01-636 5454.



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Application forms may be obtained from the County Surveyor, Tipping Street, Stafford ST16 2LP, quoting post No. 2201133 - Computer Section.

Applicants (m/f) are asked to note that it is the County Council's view that it is desirable for their employees to be members of an appropriate trade union.

Closing date: 30th November, 1982.

UMIST

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Applications are invited for two Research Assistant posts in the Department of Computation. The posts are for two years and are funded jointly by SERC and ICL. The appointees will work on the incorporation of a micro facility into an ICL COBOL compiler. Applicants should have a good honours degree in Computer Science, or some equivalent qualification, or significant relevant experience. Knowledge of COBOL and compiler writing techniques will be a distinct asset.

Salary will be on the scale £5500-£20000 on age, qualifications and experience. Applications, quoting reference DMS/250/82 and including a full c.v. and the names of two referees, should be sent to Mr. J. Tinsley, Department of Computation, UMIST, PO Box 16, Manchester, M60 1UD. The closing date is 10 November, 1982.

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Snr Systems S/W Engineer

N. Home Counties : Pkg to £16K

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Comms Systems Designers

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A number of Communications Systems Designers are required for the Advanced Systems Division of a Software and Systems Supplier. At least one degree in a computer-related discipline followed by five years' direct involvement with systems software development is necessary. Of particular interest will be candidates who have an in-depth knowledge of communications and have programmed for a minimum of two years in either PASCAL or C on any SDLC/HDL. A significant area of responsibility will include the provision of consultancy services across a wide number of projects and ensuring that performance parameters and quality assurance criteria are achieved. Good personal communication skills (both oral and written) are very important. You should also be prepared to undertake business trips both nationally and internationally. Ref: L43/C

Pascal/UNIX

E. Midlands : Salaries to £9K

One of the UK's leading microcomputer consultants, renowned for its range of products based around the UNIX operating system, is currently seeking a number of Programmers and Analyst/Programmers to be based at its East Midlands development facility. Suitable applicants should preferably hold a numerate degree and have programmed for a minimum of two years in either PASCAL or C on any leading 16 or 32 bit microprocessor. Ideally you will have some knowledge of the UNIX operating system, but this is not essential since training will be provided. Working as a member of a small project team you will be involved in various applications including Local Area Networks, Office Information Technology and Graphics. Ref: L43/D

Communications Software

Inner London : Salary to £15K

The Communications division of a leading international systems and software house has a number of vacancies for staff from Programmer to Project Leader/Consultant level. All applicants for these positions will be required to possess at least two years' message or packet-switching experience. Particular hardware experience is not sought, although preference will be given to candidates with exposure to PDP or VAX-based systems. Of special interest will be those who have also utilised microprocessors to provide shared communications functions on at least one major system. For the more senior positions familiarity with the I.S.O. reference model or any European P.S.S. is a prime requirement. Ref: L43/E

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A major Systems and Software House has recently embarked on a large new project requiring the expertise of a number of Compiler Development Specialists. Suitable candidates will have participated in the development of either a Pascal or Ada compiler, preferably for 16-bit micros. Familiarity with all phases of compiler development is strongly desirable with particular emphasis placed on Code Generation and Optimisation. Whilst specific responsibilities will vary, depending on the ability and experience offered, all successful candidates will be involved from initial proposal stages, through to the creation of a fully self-supporting compiler. Ref: L43/F

Telecomms Consultants

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A highly regarded supplier of Integrated Data and Telecommunications Systems wishes to recruit several Senior Consultants for its U.K. Headquarters. Ideally, candidates should have previous experience in the evaluation and selection of PABX/LAN equipment and have actively participated in the investigation and installation of PTT Telexnet applications within multinational corporations. All respondents must demonstrate previously successful involvement in both project and budgetary control in particular where the client has requested a total consultancy service from strategic studies through to recommendations, on-site implementation and final acceptance. Good personal presentation skills are of paramount importance since you will be expected not only to present recommendations at board level but also to persuade antipathetic users of the viability of new developments within telecommunications. Ref: L43/G

Graduate Programmers

London and H. Counties : Salaries to £7.5K

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16
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- 2 **Programmer/Analyst** **City** **£10K+**
Our client is a well-established Banking organisation, with large-scale expansion planned for the near future. Interested candidates should have a solid background in CICS and DBL, with banking experience, although not essential, an added advantage. Ref: A0014
- 3 **Programmer/Analyst** **Middlesex** **£10K+**
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- 4 **MVS Systems Programmers** **H. Counties/C. London** **to £15K**
We are currently looking for a number of MVS Systems Programmers to satisfy the needs of clients both in Central London and the Home Counties. Excellent opportunities exist for suitable applicants. Ref: A0033
- 5 **Programmers** **C. London** **£10K**
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- 6 **Project Leader + Programmers** **Essex/London borders** **to £13K + benefits**
Opportunities exist both at Project Leader and Programmer levels within this rapidly expanding insurance company. Programmers should have solid CICS/COBOL experience, while the Project Leader will need to be able to combine this with analysis and supervisory skills. Insurance experience would be an advantage, but not essential. Ref: A0027
- 7 **Analyst/Programmers ICL** **South London** **to £10,500**
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- 8 **Programmers ICL** **City** **to £10K + benefits**
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- 10 **Programmers** **South London** **to £10K**
A software house requires programmers with a minimum of 3 years' range COBOL, George III, ICL 1900 and Jackson Structured experience to help develop a new project costing system. This company offers all kinds of opportunities for the go ahead programmer. Ref: S4140
- 11 **Analyst/Programmers** **London E1** **to £13K**
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- 12 **Programmer/Analyst** **City** **to £10K+**
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- 13 **Programmers COBOL** **West End** **to £10K + benefits**
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- 14 **Programmer/Analysts RTSE BASIC+** **City** **to £10K + benefits**
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- 16 **Software Experts DP56/LEVEL6** **H. Counties** **to £11K + benefits**
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